Volume 7

MONOCOTYLEDONS
(ORCHIDACEAE
THROUGH ZOSTERACEAE)

ILLUSTRATED FLORA OF BRITISH COLUMBIA

edited by George W. Douglas, Del Meidinger and Jim Pojar

BRITISH
COLUMBIA

Ministry of Sustainable Resource Management
Ministry of Forests

OCTOBER 2001

FOREWORD

British Columbia, Canada's most westerly province, has a bounty of biological diversity. British Columbia's snowclad peaks, rain-drenched forests, arid grasslands, all sizes of rivers, lakes, and wetlands, and a long and rugged coast provide habitats for more species of living organisms than are found anywhere else in Canada. However, this very diversity means that there is much to be discovered about these organisms – their distribution, abundance, habitat requirements, and interrelationships with their environment. Increasing our knowledge of this biodiversity will help us with the complex task of sustainably managing our land and waters.

In 1992, the provincial government initiated a co-operative biodiversity research program with funding from the Corporate Resource Inventory Initiative, the British Columbia Ministries of Forests (Research Branch), Environment, Lands, and Parks (Wildlife and Habitat Protection Branches), and Tourism and Culture (Royal B.C. Museum), and the Forest Resource Development Agreement (FRDA II).

In 1995, the Ministry of Forests Research Branch and the Ministry of Environment, Lands and Parks developed a biodiversity research and extension strategy, with the assistance of the provincial research community. This strategy was presented to Forest Renewal BC (FRBC), who provided funding for a program beginning in 1995. The goal of the extension component of this program is to extend information to scientists, resource managers, and the public through biodiversity publications. These publications are intended to increase awareness and understanding of biodiversity, promote the concepts and importance of conserving biodiversity, and communicate provincial government initiatives related to biodiversity. We hope that they will be used as tools for the conservation of British Columbia's rich, living legacy.

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ILLUSTRATED FLORA *of* BRITISH COLUMBIA

Volume 7

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(Orchidaceae through Zosteraceae)

edited by
George W. Douglas[1], Del Meidinger[2] and Jim Pojar[3]

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INTRODUCTION

This flora, projected to be in eight volumes, keys, describes and illustrates all of the flowering plants and vascular non-flowering plants, both native and naturalized, known to occur at the time of writing, within the borders of British Columbia. In part, it is a revision and expansion of *The Vascular Plants of British Columbia* (Douglas *et al.* 1989, 1990, 1991, 1994). Keys are included for all genera, species, subspecies and varieties. Family keys and maps for all taxa will appear in Volume 8. Species previously recorded for the province but excluded from this treatment appear in an annotated list in Appendix I. New species, discovered in the province in recent years, have been added to families in Volume 7. Recent taxonomical or nomenclatural research has also resulted in new name changes for 49 taxa since Douglas *et al.* (1994). Appendix II lists these new name changes.

FORMAT

The floristic treatment is in alphabetical order by families, genera and species because most users may not be familiar with the more traditional "Englerian system". These users (e.g., foresters, wildlife biologists, park managers, naturalists, students, etc.) often require specific information about a species. Thus we have attempted to include the most frequently required information. Each entry includes the following:

Synonyms

Synonyms are given only when there are references in major or pertinent floristic treatments to a given species by another name or names. These names, for the most part, follow Kartesz and Meacham (1999), who have done an extremely thorough job of researching specific names and their authorities.

English Names

We provide an English name for each species, based mainly on names appearing most frequently in the western North American literature.

Habitat and Moisture Regime

A brief description of the habitat preference of a species is given. Moisture regime is denoted by a simple (wet - moist - mesic - dry) scale.

Vegetation Zones

The elevational limits of a species are presented using vegetation zones. The zonal system used here, unlike some of the regional zonation systems (Krajina 1965; Rowe 1959, 1972; Franklin and Dyrness 1973), has wide application in the northern hemisphere and differs only slightly from that proposed by Dansereau (1975) and Meusel *et al.* (1965) and recommended by Löve (1970) in a review of the subject. The *montane zone* includes all continuous forests in British Columbia except for the coastal lowlands and some islands, which comprise the *lowland zone*. The upper forests in southern British Columbia, included by some ecologists (e.g., Krajina 1965) in the subalpine zone, constitute the *upper montane zone* in this work. The *subalpine zone* is defined as that area above the montane zone and below the upper limit of conifers as an upright tree form (Douglas 1972). In the southern part of the province, subalpine vegetation consists of a meadow/tree-clump complex (Douglas 1971, 1972), while in the northern part of the province the subalpine zone is dominated by tall shrubs (mainly three- to four-metre *Salix)* and scattered trees (Douglas 1974, Krajina 1975). Above the subalpine zone is the *alpine zone,* where trees occur only in krummholz (dwarfed) form and the vegetation is extremely short (less than one metre) and commonly referred to as alpine tundra (Krajina 1969, Douglas 1972, Douglas and Bliss 1977). The *steppe zone* (Daubenmire 1970) occurs in the interior of the province and includes what is often referred to as sagebrush or grassland vegetation. This zone occurs at lower elevations in the Thompson, Okanagan, Kootenay and Columbia River valleys in southern British Columbia. Parts of the Fraser and Thompson plateaus also have grassland or steppe vegetation.

Abundance

The abundance of a species is given by a general scale: rare – infrequent – frequent – common. The rare plants are well documented in Douglas *et al.* (1998). Most of the common plants are also well known from numerous other sources. However, limited collecting or research enabled us to make only general statements about the abundance of some of the infrequent or frequent species.

Range

The general distribution of a species, both within and outside the province, is presented. Figure 1 illustrates the general areas of the province referred to in the text. Maps compiled at the Royal British Columbia Museum were extremely helpful for the more common species. Douglas *et al.* (1998) provide maps of the distributions of rare plants. Abbreviations used within the province are as follows:

E - Eastern
EC - Eastcentral
N - Northern
NE - Northeastern
NW - Northwestern

S - Southern
SC - Southcentral
SE - Southeastern
SW - Southwestern
WC - Westcentral

For ranges outside of B.C. the outer peripheries (i.e., provinces/states) of the ranges are given using the following abbreviations:

Alberta	AB
British Columbia	BC
Manitoba	MB
New Brunswick	NB
Newfoundland	NF
Northwest Territories	NT
Nova Scotia	NS
Ontario	ON
Prince Edward Island	PE
Quebec	PQ
Saskatchewan	SK
Yukon	YT
Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Mexico	MX
Maine	ME
Maryland	MD
Massachusetts	MA
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Vermont	VT
Virginia	VA
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY

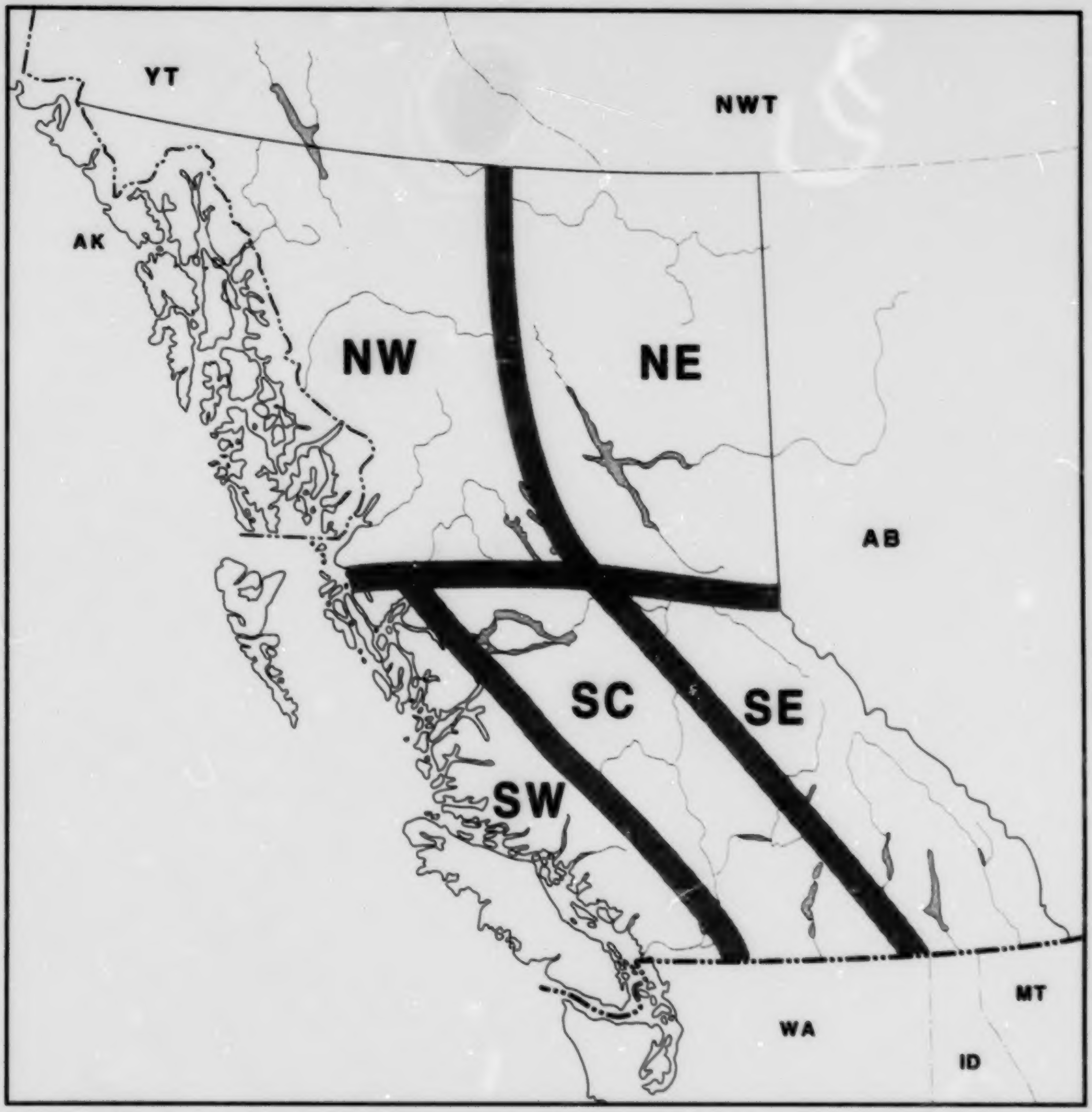
YT
NWT
AK
NW
NE
AB
SC
SE
SW
WA
MT
ID

Figure 1. Geographical Regions of British Columbia.

Descriptions

Major morphological characters are given for each taxon. In most cases, technical terminology has been reduced because most of our users have a limited botanical background. All terms, both technical and simplified, appear in the glossary.

Notes

Specific items of importance or problems, especially those related to taxonomy and nomenclature, are noted. Infraspecific taxa worthy of recognition are keyed here.

We have also appended a floristic bibliography, arranged by families, for users wishing to explore the taxonomy further.

DATABASE

The present manual is based on a wealth of regional publications dating back over a hundred years. In addition, most of the species (especially the rare and infrequent ones) have been examined in various Canadian herbaria. Historically, the floristic documentation of British Columbia's flowering plants and vascular non-flowering plants began with the enumeration of the extensive collections of J. Macoun (1883-1890). This was soon followed by the botanical contributions of his son, J.M. Macoun (1889, 1894-1906). In 1915, the first provincial flora appeared (Henry 1915), treating the southern part of the province. A supplement to this work was later provided by Eastham (1947). The southern part of the province was also included in a treatment of Pacific Northwest vascular plants by Hitchcock *et al.* (1955-1969) – later edited and revised by Hitchcock and Cronquist (1973). During this same period several other major works also appeared. Boivin (1966-1967), after numerous visits to Canadian and American herbaria, produced a checklist of Canadian vascular plants. In his *Flora of Alaska and Neighboring Territories*, Hultén (1968) provided brief descriptions with range maps that, in many cases, included British Columbian species. Meanwhile, in a treatment of the Queen Charlotte Islands' vascular plants, Calder and Taylor (1968) contributed one of the few floras dealing solely with a part of British Columbia. British Columbia was again included in a regional flora of northwestern North America when Welsh (1974) treated the plants of Alaska and adjacent parts of Canada, including northern British Columbia. A literature review by Taylor and MacBryde (1977), mainly of North American works, resulted in a resource inventory of vascular plants for British Columbia. (Unfortunately, this extensive review treated several hundred erroneous citations as valid records for the province. It also ignored many herbaria records that had never been published.) Recently, a modern Canadian flora was produced by Scoggan (1978-1979). All of the province's rare or infrequent plants were examined and verified in various Canadian herbaria by Straley *et al.* (1985) and, more recently, by Douglas *et al.* (1998). Finally, the BC flora was documented, annotated and all species keyed in *The Vascular Plants of BC* (Douglas *et al.* 1989, 1990, 1991, 1994).

In addition to the major works mentioned above, there have been numerous taxonomic, floristic and related research papers dealing with British Columbia's vascular plants. Many of these are cited in the floristic bibliography by Douglas *et al.* (1983) and many are specifically referenced in this manual.

This study was supplemented by the examination of specimens in all major Canadian herbaria and some US herbaria (e.g., UC, CAS, WTU), as well as a complete review of the pertinent literature.

Although descriptions and illustrations are provided for all of British Columbia's plant species in this manual, additional descriptions and/or illustrations may also be found in several floras (Abrams 1923-1951, Argus 1973, Cody 1996, Cronquist *et al.* 1986-1994, Fernald 1950, Ferris 1960, Hickman 1993, Hitchcock *et al.* 1955-1969, Packer 1983a, Porsild and Cody 1980, Tutin *et al.* 1964-1980, Welsh 1974) or in treatments of some British Columbian plant families (Brayshaw 1976, 1985, 1996a, 1996b; Douglas 1982, 1995; Szczawinski 1959, 1962; Taylor 1963, 1966, 1970, 1973a, 1974a, 1974b, 1983).

TAXONOMIC CONCEPTS

We have a practical view of species limits. Therefore, species had to be readily characterized morphologically in order to produce user-friendly keys. Many of the keys were newly constructed while others were adapted for our British Columbia plants from well-tested manuals.

Wherever possible, geographically separate, or largely separate, infraspecific taxa are treated at the subspecies level, while those with sympatric ranges are treated at the varietal level. This distinction between subspecies and variety was not always possible since, with the exception of a variety of *Trillium ovatum*, we have not published any nomenclatural changes associated with the production of the manual. In this work, we have not used more than one infraspecific rank for a single species. Taxa are not recognized at the *forma* level.

ORCHIDACEAE[1]

1. Plants saprophytic, lacking green stems and leaves.
    2. Stems yellow to red-brown; underground parts coral-like; lip not saclike .... *Corallorhiza*
    2. Stems white; underground parts not coral-like; lip saclike at base .... *Cephalanthera*
1. Plants not saprophytic, bearing green stems and leaves (leaves may be withered by time of flowering).
    3. Lips large inflated sacs more than 1 cm long.
        4. Leaves two or more (either basal or on the flowering stems); lips smooth .... *Cypripedium*
        4. Leaves one (basal); lips hairy .... *Calypso*
    3. Lips not saclike, or if so, less than 1 cm long.
        5. Flowers with a distinct spur projecting downward from the base of lip.
            6. Flowers white to pale pink, spotted with dark red .... *Amerorchis*
            6. Flowers white to green, not spotted.
                7. Lips three-lobed at tips; bracts greatly exceeding flowers .... *Coeloglossum*
                7. Lips not lobed at tips; bracts usually not exceeding flowers.
                    8. Sepals 1-veined; basal leaves usually withered at flowering .... *Piperia*
                    8. Sepals 3-veined; basal leaves remaining green at flowering .... *Platanthera*
        5. Flowers lacking a spur.
            9. Leaves basal.
                10. Leaves fleshy and evergreen, mottled or veined with white; plants without bulblike corms .... *Goodyera*
                10. Leaves membranous, not evergreen and not mottled or veined with white; plants with bulblike corms.
                    11. Flowers and mature capsules about 1 cm long .... *Liparis*
                    11. Flowers and mature capsules less than 0.5 cm long .... *Malaxis*
            9. Leaves, or at least some of them, stem leaves.
                12. Leaves two, opposite and unstalked .... *Listera*
                12. Leaves several, alternate.
                    13. Leaves not much reduced upward; bracts subtending flowers leafy; flowers purplish-brown, large, more than 1 cm long .... *Epipactis*
                    13. Leaves strongly reduced upward; bracts not leaflike; flowers white to green, small, less than 1 cm long .... *Spiranthes*

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[1] Contributed by D. Meidinger and J. Pojar.

AMERORCHIS

***Amerorchis rotundifolia* (Banks ex Pursh) Hult.** (*Orchis rotundifolia* Banks *ex* Pursh)
round-leaved orchis

HABITAT/RANGE:

Moist, mossy forests, streambanks, swamps and bogs in the montane zone; infrequent throughout BC east of the Coast-Cascade Mountains; N to AK, YT and NT, E to NF and S to ME, MI, WI, MN, WY and ID.

DESCRIPTION:

General: Perennial herb from short rhizomes, with fleshy, fibrous roots; stems 10-20 cm tall, leafless, smooth.

Leaves: Single, basal or nearly basal, round to elliptic, smooth, 3-7 cm long, 2-7 cm wide, unstalked or nearly so.

Flowers: Inflorescence a few-flowered terminal raceme of showy flowers; sepals and lateral petals whitish to pink; sepals 3- to 5-veined, narrowly egg-shaped, 6-10 mm long; petals 2- to 3-veined, narrower than sepals, 5-6 mm long; lip 5-10 mm long, 3-lobed, the terminal lobe much larger, white with purple to dark red spots, the spur 3-7 mm long.

Fruits: Capsules, ellipsoid, about 15 mm long.

CALYPSO

***Calypso bulbosa* (L.) Oakes** (*C. bulbosa* ssp. *occidentalis* [Holzinger] Calder & Taylor = var. *occidentalis*)
fairy-slipper

HABITAT/RANGE:

Dry to moist, mossy forests in the lowland, steppe and montane zones; var. *occidentalis* – common W of the Coast-Cascade Mountains; var. *americana* – common E of the Coast-Cascade Mountains; circumpolar; var. *occidentalis* – N to AK and YT and S to ID and CA, Eurasia; var. *americana* – N to AK, YT and NT, E to NF and S to ME, VT, MI, WI, MN, SD, NM and AZ.

DESCRIPTION:

General: Perennial herb from fleshy, cylindrical or globe-shaped corms; stems 5-20 cm tall, smooth but with 2 to 4 sheathing bracts.

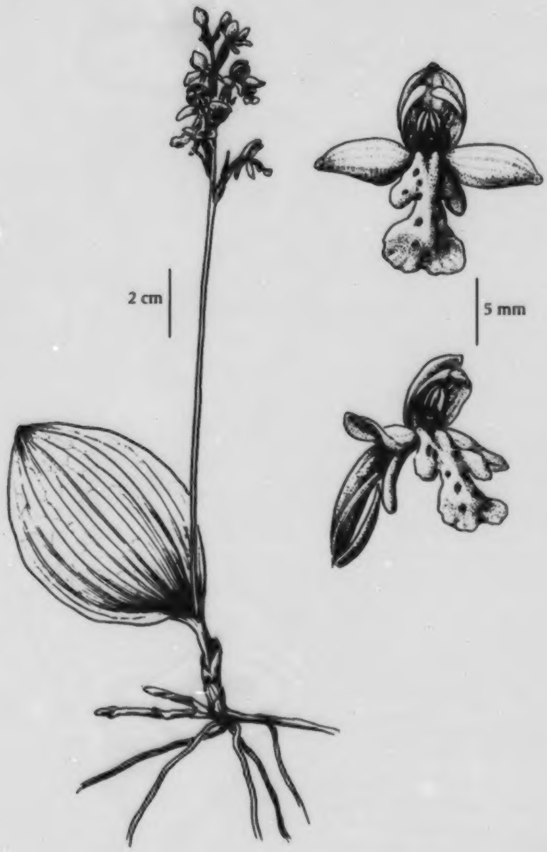
Leaves: Single basal, long-stalked, blades elliptical or heart- to egg-shaped, smooth, 3-6.5 cm long, stalks 1-6 cm long.

Flowers: Inflorescence a single, showy, terminal flower, the flowers variegated with purple, pink, and yellow; sepals and lateral petals alike, magenta with 3 darker veins, narrowly lanceolate, 12-25 mm long; lip slipper-shaped, nodding, pouched, yellowish-purple to reddish-purple, variously spotted or streaked with darker purple, 15-25 mm long, the lower portion with apron, hairy above; hood-like column purplish, 8-11 mm long, widely egg-shaped, arched over pouch.

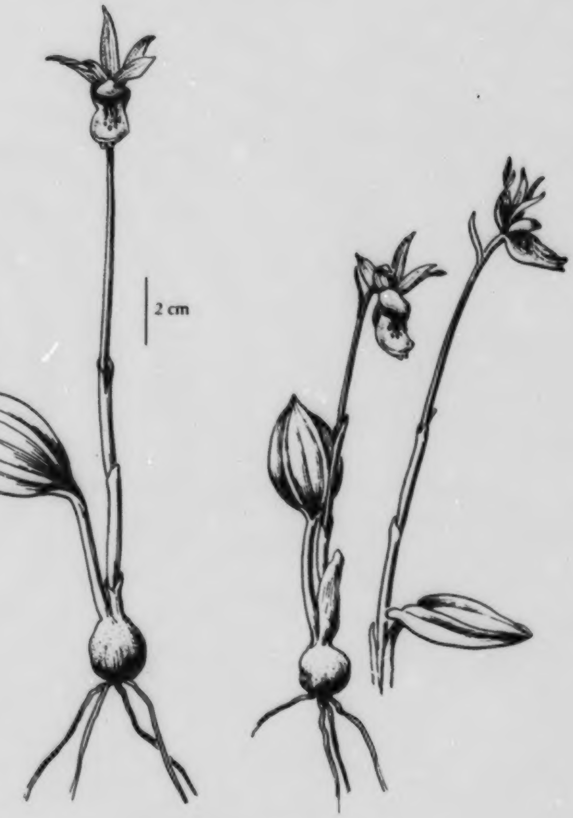
Fruits: Capsules, erect, ellipsoid, 2-3 cm long.

Notes: Two varieties are found in BC:

1. Bristlelike hairs on lips sparse, whitish; lip apron white, mottled or irregularly blotched with purple .... var. *occidentalis* (Holzinger) Boivin
1. Bristlelike hairs on lips numerous, yellow; lip apron yellowish .... var. *americana* (R.Br.) Luer



Amerorchis rotundifolia



Calypso bulbosa* var. *occidentalis

CEPHALANTHERA

Cephalanthera austiniae **(A. Gray) Heller (*Eburophyton austiniae* [A. Gray] Heller)**
phantom orchid

HABITAT/RANGE:

Moist to mesic forests in the lowland zone; rare in the lower Fraser Valley, SE Vancouver Island and the Gulf Islands; S to ID and CA.

DESCRIPTION:

General: Perennial, saprophytic herb from branched, creeping rhizomes; stems 20-55 cm tall; plant white, turning yellowish or brownish, smooth.

Leaves: Bractlike, 2 to 5, mostly sheathing stem, 3-6 cm long.

Flowers: Inflorescence a terminal raceme of 5 to 20 white flowers; sepals and lateral petals alike, elliptical to oblanceolate, 12-20 mm long, tips pointed; lateral petals usually longer than lip; lip saclike, with a yellow, pimpled gland within at the base, folded lengthwise, constricted at midlength, with a terminal lobelike portion above, the lobe bent back above middle; column 6-9 mm long.

Fruits: Capsules, erect.

COELOGLOSSUM

Coeloglossum viride **(L.) Hartmann var. *virescens* (Muhl. *ex* Willd.) Luer** (*C. viride* [L.] Hartmann ssp. *bracteatum* [Muhl. *ex* Willd.] Hult., *Habenaria viridis* [L.] R. Br. var. *bracteata* [Muhl. *ex* Willd.] A. Gray)
long-bracted frog orchid; frog-orchis

HABITAT/RANGE:

Mesic to wet forests, grassy slopes, shores, bogs and swamps in the lowland, steppe and montane zones; infrequent throughout BC east of the Coast-Cascade Mountains, rare along the coast; N to AK, YT and NT; E to NF and S to ME, PA, NC, TN, MO, NE, NM, AZ and WA; E Asia.

DESCRIPTION:

General: Perennial herb from fleshy roots, smooth throughout; stems 15-60 cm tall, leafy.

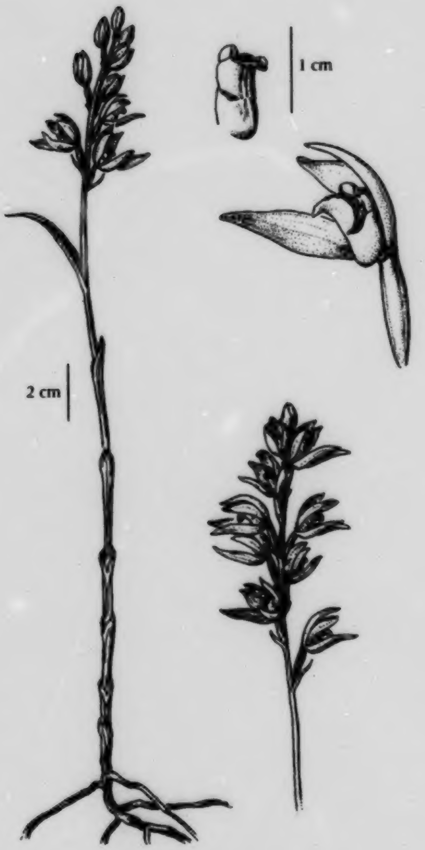
Leaves: Stem leaves only, several, egg-shaped to oblong or oblanceolate, 4-15 cm long, 1-6.5 cm wide.

Flowers: Inflorescence a few- to many-flowered terminal raceme, the bracts leaflike, ascending, lanceolate, several times longer than flowers, the flowers green to yellowish-green; sepals egg-shaped, 3-6 mm long, spreading; petals much narrower than sepals, narrowly lanceolate, 3-5 mm long; lip 6-10 mm long, wedge-shaped to oblong, 2- or 3-toothed at tip; spur shorter than lip, scrotum-shaped.

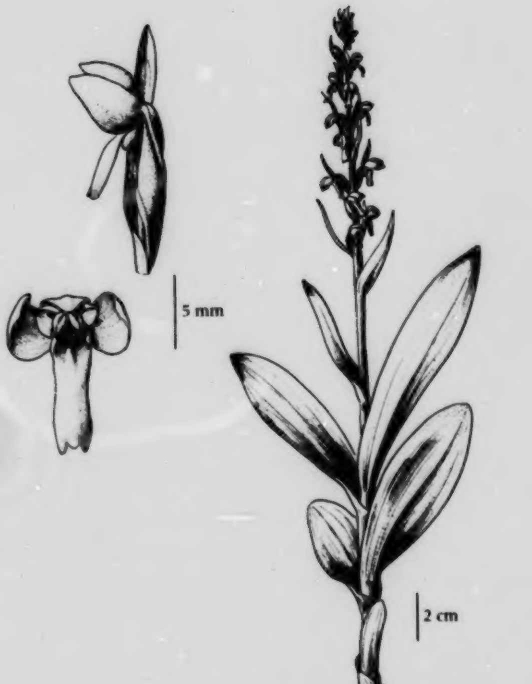
Fruits: Capsules, ellipsoid, somewhat erect, about 12 mm long.

CORALLORHIZA

1. Sepals with purple stripes; lips unlobed .... *C. striata*
1. Sepals not striped; lips lobed or toothed toward the bases.
    2. Lateral sepals 1-veined; lips 3-5 mm long; plants yellow or yellowish-green, usually less than 20 cm tall .... *C. trifida*
    2. Lateral sepals 3-veined; lips 5-10 mm long; plants purple to brownish-red (rarely yellow), usually more than 20 cm tall.
        3. Lips with 4-8 spots, strongly 3-lobed, the lateral lobes rounded; column 3-5 mm long .... *C. maculata*
        3. Lips with 0-4 spots, weakly 3-lobed, the lateral lobes sharp-pointed, toothlike; column 5.5-8 mm long .... *C. mertensiana*



Cephalanthera austiniae



Coeloglossum viride var. *virescens*

Corallorhiza maculata **(Raf.) Raf.** (*C. maculata* var. *occidentalis* [Lindl.] Ames)

spotted coralroot

HABITAT/RANGE:

Moist to dry forests in the lowland, steppe and montane zones; frequent throughout BC, especially along the coast, south of 55° N, rare northward; E to NF and S to ME, MA, PA, SC, TN, IA, TX, NM, AZ and CA; Guatemala.

DESCRIPTION:

General: Perennial, saprophytic herb from coral-like rhizomes; stems (15) 20-55 cm tall, red to yellow-brown, smooth.

Leaves: Bractlike and sheathing.

Flowers: Inflorescence a terminal raceme of 10 to 40 short-stalked, erect to spreading and ultimately bent back flowers, the bracts scalelike; sepals usually the same colour as stem, oblong to lanceolate, 5.5-10 mm long, the lower spreading; lateral petals deep pink to red, sometimes dark-spotted; lip 5-7 mm long, white, red- to purple-spotted, base with 2 lateral lobes, larger terminal lobe irregularly fine-toothed; spur less than 2.5 mm long; column 3-5 mm long, curved over lip, yellowish, purple-spotted.

Fruits: Capsules, egg-shaped, drooping, 15-20 mm long.

Corallorhiza mertensiana **Bong.** (*C. maculata* Raf. ssp. *mertensiana* [Bong.] Calder & Taylor)

western coralroot

HABITAT/RANGE:

Moist to dry forests in the lowland, steppe and montane zones; frequent throughout BC, especially along the coast, south of 55° N, rare northward; N to SE AK and S to WY, ID and CA.

DESCRIPTION:

General: Perennial, saprophytic herb from coral-like rhizomes; stems (15) 20-55 cm tall, reddish, smooth.

Leaves: Bractlike, sheathing, 2 or 3.

Flowers: Inflorescence a terminal raceme of 3 to 25 short-stalked, erect to spreading flowers, the bracts scalelike; sepals usually pink, narrowly oblanceolate, 7-10 mm long, the lower spreading; lateral petals deep pink to red, veins usually yellow or dark red; lip 6-9 mm long, deep pink to red, usually with 3 dark red veins, base with 2 lateral short teeth, tip irregularly fine-toothed; spur 0.5-2.5 mm long; column 5.5-8 mm long, curved over lip.

Fruits: Capsules, egg-shaped, drooping, 15-25 mm long.

Corallorhiza striata **Lindl. var. *striata***

striped coralroot

HABITAT/RANGE:

Moist forests in the lowland, steppe and montane zones; frequent throughout BC, south of 55° N; E to PQ and S to NY, MI, WI, MN, ND, CO, UT and CA.

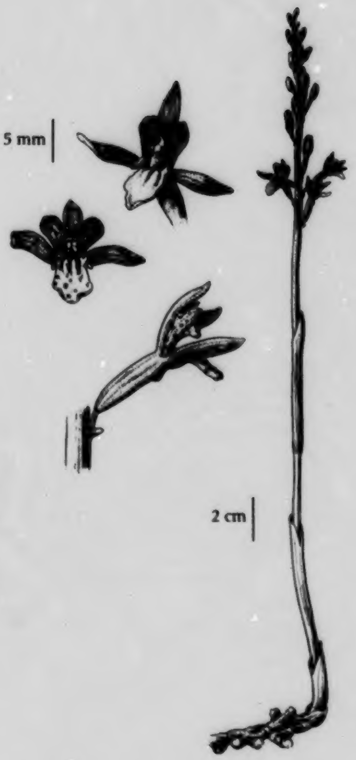
DESCRIPTION:

General: Perennial, saprophytic herb from coral-like rhizomes; stems 15-50 cm tall, usually red-brown to purplish, smooth.

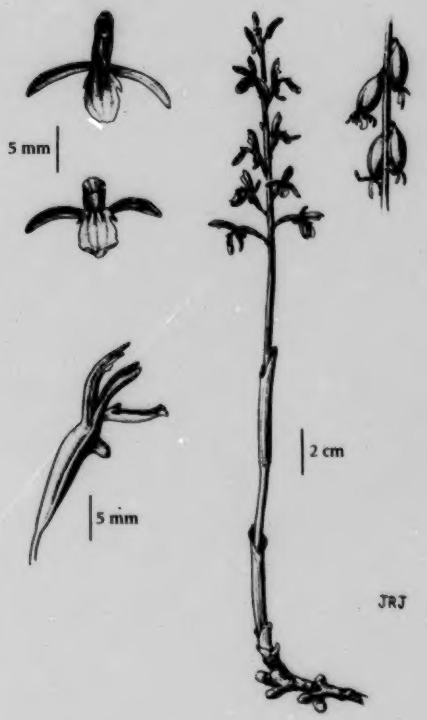
Leaves: Bractlike and sheathing.

Flowers: Inflorescence a terminal raceme of 10 to 25 short-stalked, spreading to drooping flowers, the bracts scalelike; sepals usually yellowish-pink to pale brown, with 3 to 5 reddish to purplish, lengthwise stripes, oblong to lanceolate, 6-17 mm long, the lower curved forward; lateral petals sepal-like but slightly shorter and wider; lip oval, 8-15 mm long, pale yellow-brown to reddish, entire; column 4-7 mm long, purple-spotted.

Fruits: Capsules, ellipsoid, drooping, 12-25 mm long.



Corallorhiza maculata


5 mm
2 cm
5 mm
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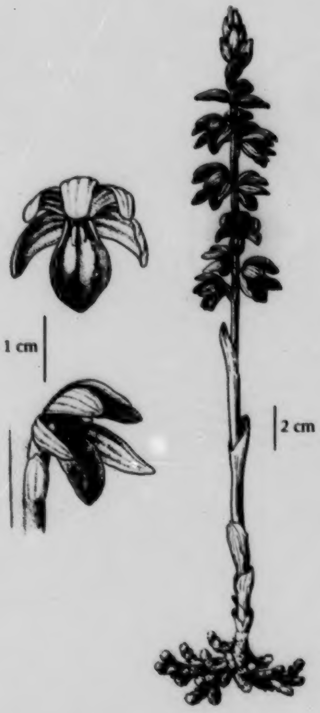
Corallorhiza mertensiana



Corallorhiza striata var. *striata*

Corallorhiza trifida **Châtelain**

yellow coralroot

HABITAT/RANGE:

Moist to mesic coniferous and mixed forests in the steppe and montane zones; frequent throughout BC east of the Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, WV, OH, IL, MN, SD, NM, UT, NV and CA; Greenland, Iceland, and Eurasia.

DESCRIPTION:

General: Perennial, saprophytic herb from coral-like rhizomes; stems 8-20 (30) cm tall, yellowish to greenish, smooth.

Leaves: Bractlike, sheathing, 2 to 5.

Flowers: Inflorescence a terminal raceme of 3 to 20 short-stalked, spreading flowers, the bracts scalelike; sepals usually white or yellowish, lanceolate to oblanceolate, 4.5-6 mm long, usually 1-veined, the lower curved forward; lateral petals sepal-like, but slightly shorter and wider; lip oblong, 3-4.5 mm long, white, sometimes faintly red-spotted, the base usually short-lobed or toothed, vaguely toothed beyond the middle; column 2.5-6 mm long, white or yellowish.

Fruits: Capsules, ellipsoid, drooping, 8-14 mm long.

CYPRIPEDIUM

1. Lips yellow, often veined or spotted with purple on the inner surface .... *C. parviflorum*
1. Lips white or pinkish, tinged or veined with purple.
    2. Sepals shorter than the lips .... *C. passerinum*
    2. Sepals longer than the lips .... *C. montanum*

Cypripedium montanum **Dougl. *ex* Lindl.**

mountain lady's-slipper; white lady's-slipper

HABITAT/RANGE:

Moist to dry open forests in the steppe, montane and subalpine zones; rare on N Vancouver Island, infrequent in and E of the Coast-Cascade Mountains, rare northward; N to AK, E to SK and S to WY, ID and CA.

DESCRIPTION:

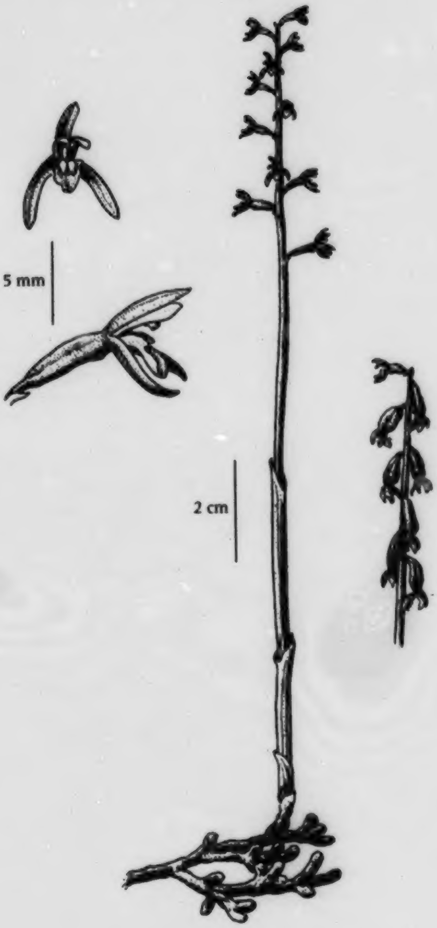
General: Perennial herb from stout rhizomes, with coarse, fibrous roots; stems 25-70 cm tall, glandular-hairy, leafy.

Leaves: Stem leaves 4 to 6, egg-shaped to elliptic-lanceolate, 5-16 cm long, 2.5-8 cm wide, ribbed, the base sheathing.

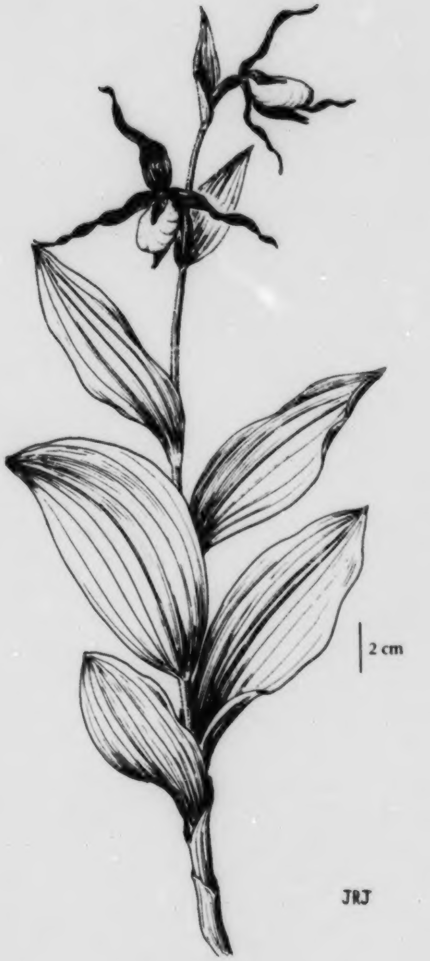
Flowers: Inflorescence of 1 to 3 showy flowers; sepals brownish-purple to dark green with purple splotches, lanceolate, twisted, 3-6 cm long, 1-2 cm wide, the lower sepals united, pendant behind lip; petals similar to sepals; lip egg-shaped, 2-3 cm long, 1.5 cm wide and deep, white with purple veins.

Fruits: Capsules, nearly erect, narrowly ellipsoid, ribbed, glandular-hairy.

Notes: *C.* x *columbianum* Sheviak, a hybrid of *C. montanum* and *C. parviflorum* var. *pubescens*, is known from BC and the adjacent NW U.S.A. The type specimen for the hybrid was collected in BC (Sheviak 1992). The hybrids are either intermediate between the two species or have a mix of characteristics of each.



Corallorhiza trifida



Cypripedium montanum

Cypripedium parviflorum **Salisb.** (*C. calceolus* L. ssp. *parviflorum* [Salisb.] Hult., *C. pubescens* Willd. = var. *pubescens*; *C. makasin* [Farw.] Farw. = var. *makasin*)

yellow lady's-slipper

HABITAT/RANGE:

Moist to mesic streambanks, river terraces, thickets, and mossy bogs and swamps in the steppe and montane zones; infrequent E of the Coast-Cascade Mountains; var. *makasin* – N to YT and NT, E to NF and S to ME, MA, PA, IN, IL, IA, ND, CO and CA; var. *pubescens* – N to AK and YT, E to NF and S to ME, MA, PA, GA, AL, MS, KS, NM, AZ and WA.

DESCRIPTION:

General: Perennial herb from slender rhizomes, with coarse, fibrous roots; stems 10-50 cm tall, glandular-hairy, leafy.

Leaves: Stem leaves 3 to 5, lanceolate to elliptic, 5-15 cm long, 3.5-6 cm wide, ribbed, the base sheathing.

Flowers: Inflorescence usually of a single, showy flower; sepals greenish-yellow to purplish or purple-veined, 3-5 cm long, 1-2 cm wide, upper sepal broadly lanceolate, the lower sepals united, pendant behind lip; lateral petals narrower than but otherwise similar to upper sepal, sometimes twisted, 3.5-5 cm long; lip balloon-like, generally egg-shaped, 2-3.5 cm long, yellow, often purple-spotted on inside especially near mouth, mouth puckered, margin in-rolled.

Fruits: Capsules, erect, ellipsoid, ribbed, glandular-hairy.

Notes: *C.* x *columbianum* Sheviak, a hybrid of *C. montanum* and *C. parviflorum* var. *pubescens*, is known from BC and the adjacent NW U.S.A. (see notes under *C. montanum*). Two varieties of *C. parviflorum* occur in BC: var. *makasin* and var. *pubescens*. Some authors (e.g., Cribb 1997) include var. *makasin* within var. *parviflorum*, a variety not found in BC:

1. Outer surface of sheathing bract sparsely hairy to smooth, when young; intense sweet scent .... var. *makasin* (Farwell) Sheviak

1. Sheathing bract densely hairy when young; moderately scented .... var. *pubescens* (Willd.) Knight

Cypripedium passerinum **Richards.**

sparrow's-egg lady's-slipper; northern lady's-slipper

HABITAT/RANGE:

Moist forests, swamps, river terraces, edges of lakes and streams, and talus slopes in the montane and subalpine zones; infrequent in N and E BC, rare in SC BC; N to AK, YT and NT, E to PQ and S to MT.

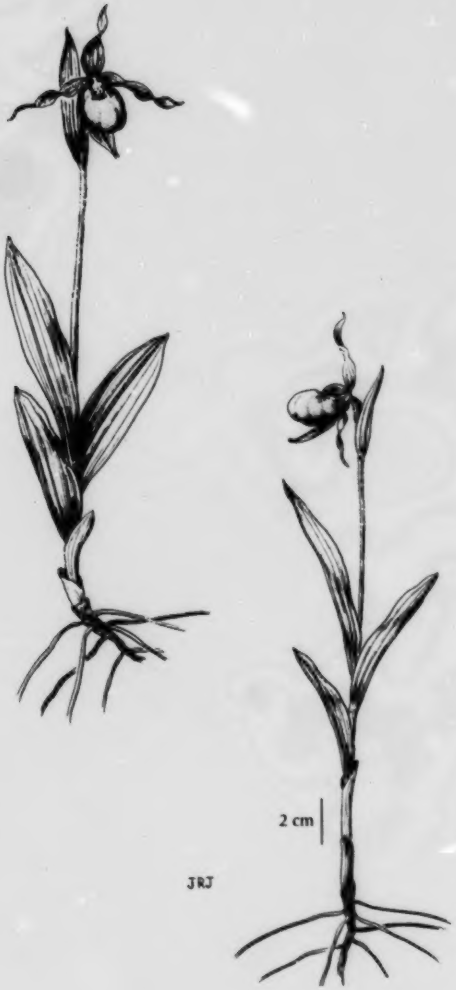
DESCRIPTION:

General: Perennial herb from slender rhizomes, with coarse, fibrous roots; stems 10-35 cm tall, long-soft-hairy, leafy.

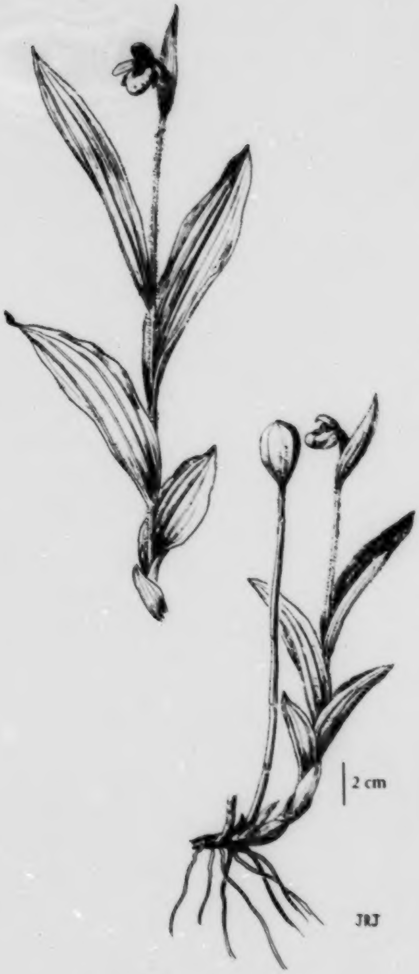
Leaves: Stem leaves 3 to 5, broadly lanceolate to elliptic, 5-16 cm long, sticky-hairy, ribbed, the base sheathing.

Flowers: Inflorescence of 1 to 3 small, terminal flowers; lateral sepals green, 1-1.5 cm long, free almost to base; lateral petals white, broadly linear to oblong, about length of lip; lip balloon-like, egg-shaped, 1.5-2 cm long, white, faintly purple-spotted on inside.

Fruits: Capsules, erect, ellipsoid, 2-3 cm long, hairy.



Cypripedium parviflorum var. *pubescens*



Cypripedium passerinum

EPIPACTIS

1. Flowers large, sepals and petals 12-20 mm long; lips 14-20 mm long, grooved to tip .... *E. gigantea*
1. Flowers small, sepals and petals 8-13 mm long; lips 10-12 mm long, more or less flat above middle .... *E. helleborine*

Epipactis gigantea **Dougl. *ex* Hook.**
giant helleborine; stream orchid

HABITAT/RANGE:

Moist streambanks, fens, marshes and swamps, and around hot springs in the lowland and montane zones; rare in S BC; S to TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial herb from short rhizomes and clustered, thickened roots; stems 30-100 cm tall, leafy, sparsely hairy.

Leaves: Stem leaves lanceolate to widely elliptic, 5-15 cm long, ribbed, gradually reduced upward and downward.

Flowers: Inflorescence terminal, somewhat 1-sided, of several showy flowers, the bracts leaflike; sepals green to reddish, purple-veined, lanceolate to egg-shaped, 12-20 mm long, the lower sepals spreading to descending; lateral petals similar to sepals, 13-15 mm long, ascending or curved forward; lip 14-20 mm long, saclike at base, 3-lobed, lower half deeply concave, greenish to yellowish, red-purple-veined, upper half grooved, yellow, reddish-tinged or -veined below; column 5-9 mm long, curved over lip.

Fruits: Capsules, ellipsoid, spreading to drooping, 2-3 cm long.

Epipactis helleborine **(L.) Crantz**
helleborine; broadleaf helleborine

HABITAT/RANGE:

Moist to dry waste places, forests and fields in the lowland zone; infrequent in SW BC; introduced from Europe.

DESCRIPTION:

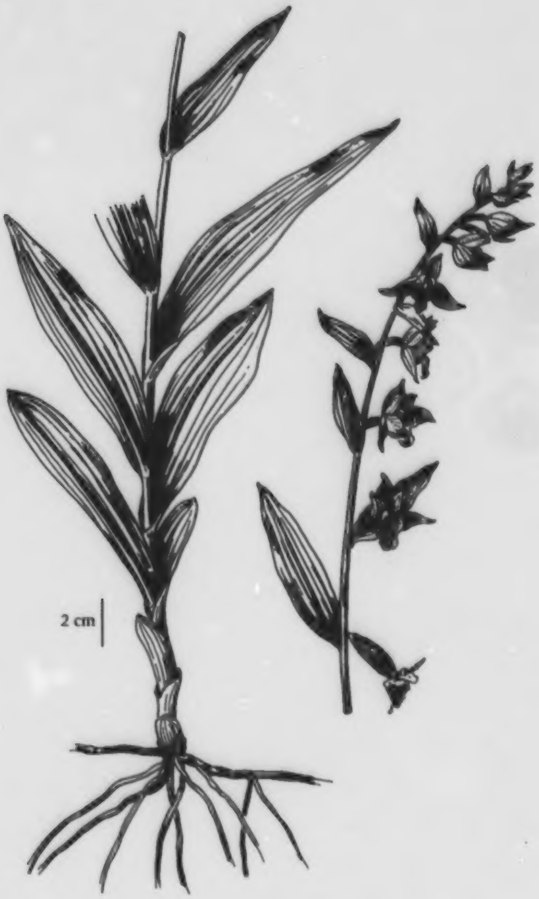
General: Perennial herb from rhizomes and thickened roots; stems 40-100 cm tall, leafy.

Leaves: Stem leaves lanceolate to egg-shaped, 6-10 cm long, ribbed, gradually reduced upward and downward.

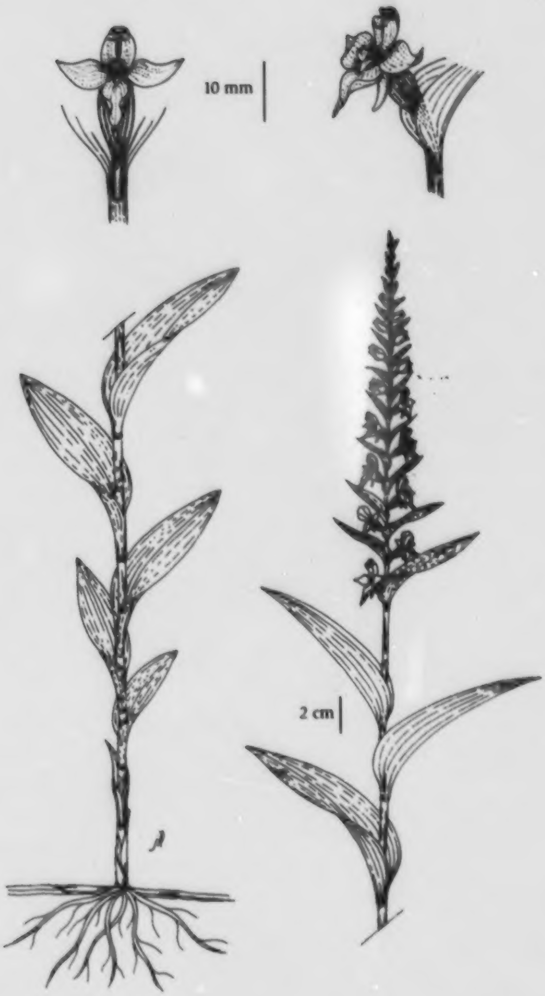
Flowers: Inflorescence terminal, somewhat 1-sided, of several showy flowers, the bracts linear to narrowly lanceolate; sepals green, purple-tinged, especially on outside, lanceolate to egg-shaped, 10-13 mm long, the lower sepals spreading to descending; lateral petals similar to sepals, 8-11 mm long, ascending or curved forward; lip 10-12 mm long, lower half pouchlike, white to pinkish outside, brown to purplish inside, upper half more or less flat, white to pinkish, with 2 thick bumps near base; column 3-5 mm long, curved over lip.

Fruits: Capsules, ellipsoid, spreading to drooping, 1-1.5 cm long.

Notes: The pure white forma *monotropoides* (Mousley) Scoggan, previously known only from PQ (Scoggan 1978), was recently collected in the Victoria area.



Epipactis gigantea



Epipactis helleborine

GOODYERA

1. Plants usually more than 20 cm tall; leaves 4-10 cm long, white-mottled or with a white midrib; petals more than 4 mm long .... *G. oblongifolia*
1. Plants usually less than 15 cm tall; leaves less than 4 cm long, usually not white-mottled or with a white midrib; petals less than 4 mm long .... *G. repens*

Goodyera oblongifolia **Raf.**

rattlesnake-plantain; large-leaved rattlesnake orchid

HABITAT/RANGE:

Dry to moist, mossy forests in the lowland, steppe and montane zones; common throughout BC, south of 56° N; N to AK, E to PQ, NB and NS and S to ME, MI, WI, NE, NM, AZ and CA.

DESCRIPTION:

General: Perennial herb from slender rhizomes and thickened roots; stems 20-40 cm tall, with bracts, lacking leaves, glandular-hairy.

Leaves: In a basal cluster, the stalks 5-20 mm long, the blades usually oblong-elliptic, 3-7 cm long, dark green, usually blotched with white along midvein or white-veined.

Flowers: Inflorescence a terminal, 1-sided and often spiraled, bracted, spikelike raceme, the flowers greenish-white, small; sepals 1-veined, lateral sepals about 5 mm long, the upper sepal 6-11 mm long, joined with lateral petals to form a hood over the lip; lip 5-7 mm long, pouchlike, beaked; column 3-5 mm long.

Fruits: Capsules, ascending to erect, about 10 mm long.

Goodyera repens **(L.) R. Br.**

dwarf rattlesnake orchid

HABITAT/RANGE:

Dry to moist, mossy forests in the steppe and montane zones; frequent throughout C and E BC; circumpolar, N to AK and YT, E to NF and S to ME, MA, PA, SC, IN, WI, MN, SD, NM and AZ; Eurasia.

DESCRIPTION:

General: Perennial herb from slender rhizomes; stems 10-25 cm tall, with bracts, lacking leaves, glandular-hairy.

Leaves: In a basal cluster, the stalks 5-15 mm long, the blades egg-shaped to oblong-elliptic, 1-3 cm long, dark green, sometimes whitish net-veined.

Flowers: Inflorescence a terminal, somewhat twisted, 1-sided, bracted, spikelike raceme, the flowers greenish-white, small; sepals 3-3.5 mm long, 1-veined, the upper sepal joined with lateral petals to form a hood over the lip; lip 3-3.5 mm long, pouchlike, beaked.

Fruits: Capsules, ascending or divergent, egg-shaped, 5-9 mm long, tipped by dried flowers.

LIPARIS

Liparis loeselii **(L.) L.C. Rich.**

yellow widelip orchid; Loesel's liparis

HABITAT/RANGE:

Moist thickets and fens in the montane zone; rare in C BC, known only from Mara Meadows Ecological Reserve and White Lake, near Salmon Arm; circumpolar, N to NT, E to NF and S to ME, MA, PA, NC, AL, AR, NE, MT and WA; Eurasia.

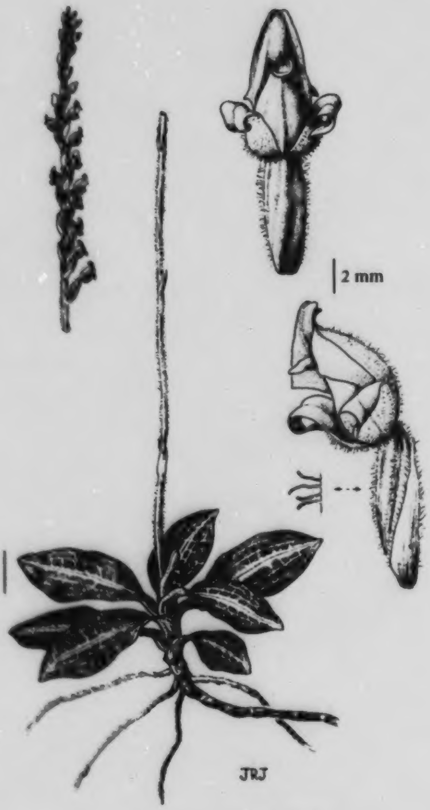
DESCRIPTION:

General: Perennial herb from bulblike bases (corms); stems 7-20 cm tall, with 2 basal leaves, smooth.

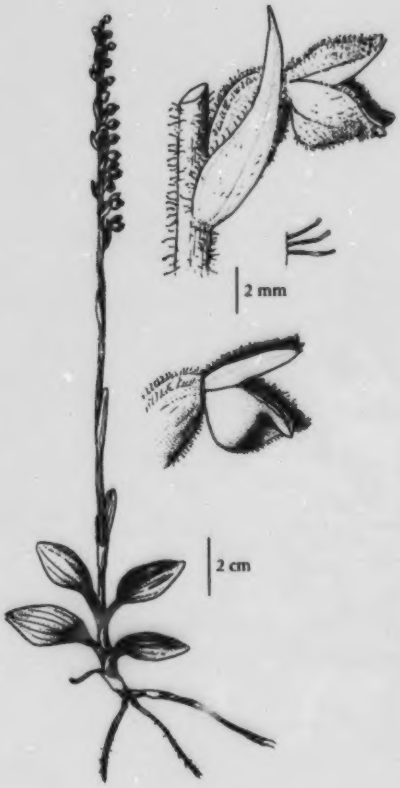
Leaves: Two basal, erect, oblong-elliptic, 5-15 cm long, keeled on back, narrowed to winged stalks.

Flowers: Inflorescence an open, several-flowered, terminal raceme, bracts linear-lanceolate, 1.5-2.5 mm long, flowers whitish to greenish-yellow; sepals narrowly lanceolate, spreading, 4.5-6 mm long, 3-veined; petals narrower and shorter than sepals, 4-5 mm long, 1-veined; lip 4-5 mm long, oblong to oval, entire to lobed, 5- to 7-veined, curved downward, abruptly pointed at tip; column 2-2.5 mm long, broad at base.

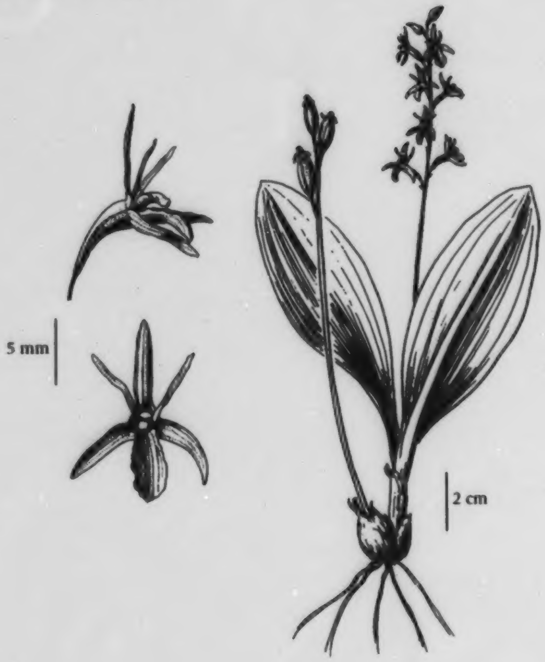
Fruits: Capsules, ellipsoid to egg-shaped, 9-13 mm long.



Goodyera oblongifolia



Goodyera repens



Liparis loeselii

LISTERA

1. Lips deeply cleft into two linear pointed lobes .... *L. cordata*
1. Lips entire or shallowly cleft into blunt lobes.
    2. Lips rectangular or oblong, with rounded lobes at base, without a pair of lateral teeth .... *L. borealis*
    2. Lips wedge-shaped, with a pair of lateral teeth, no lobes at base.
        3. Ovaries glabrous; lips with a long slender tooth on each side at the base, not hairy-margined .... *L. caurina*
        3. Ovaries slightly glandular-hairy; lips with a short triangular tooth on each side at the base, finely hairy-margined .... *L. convallarioides*

***Listera borealis* Morong**

northern twayblade

HABITAT/RANGE:

Moist coniferous forests, edges of streams and meadows in the montane to subalpine zones; infrequent in BC east of the Coast-Cascade Mountains; N to AK, YT and NT, E to PQ and S to CO, UT, ID and OR.

DESCRIPTION:

General: Perennial herb from slender rhizomes, with fibrous roots; stems 5-20 cm tall, with 2 leaves, glandular-hairy above.

Leaves: Two, near middle of stem, roughly opposite, egg-shaped to elliptic, 1-6 cm long, 0.7-3 cm wide, abruptly tapered to base, smooth.

Flowers: Inflorescence a somewhat open, few-flowered, terminal raceme, the flowers green or yellowish-green; sepals broadly lanceolate, 4-7 mm long, 1-veined, distinct; petals similar to sepals, 4-6 mm long; lip 8-13 mm long, 5-7 mm wide at tip, broadly oblong, widely notched at tip, with 2 rounded lobes at base.

Fruits: Capsules, spreading, egg-shaped, to 5 mm long.

***Listera caurina* Piper (*L. banksiana auct. non* Lindl.)**

northwestern twayblade

HABITAT/RANGE:

Moist forests, bogs and meadows in the montane and subalpine zones; frequent on the coast, infrequent in NW BC and E of the Coast-Cascade Mountains south of 55° N; N to AK, E to AB and S to WY, ID and CA.

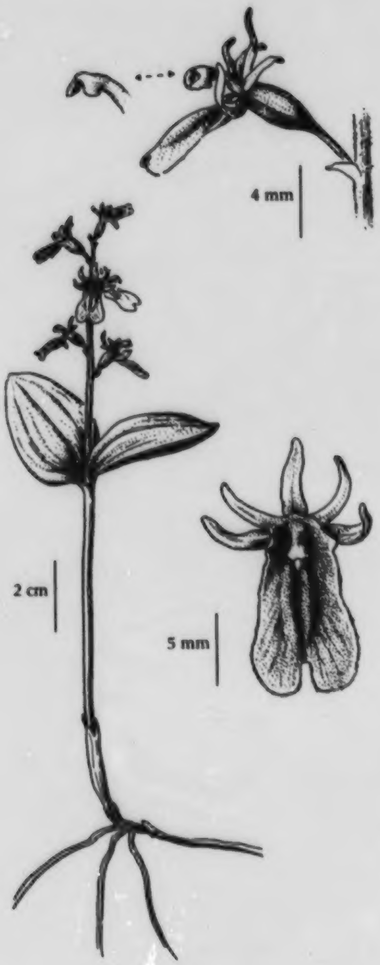
DESCRIPTION:

General: Perennial herb from slender rhizomes, with fibrous roots; stems 10-30 cm tall, slender, with 2 leaves, glandular-hairy above.

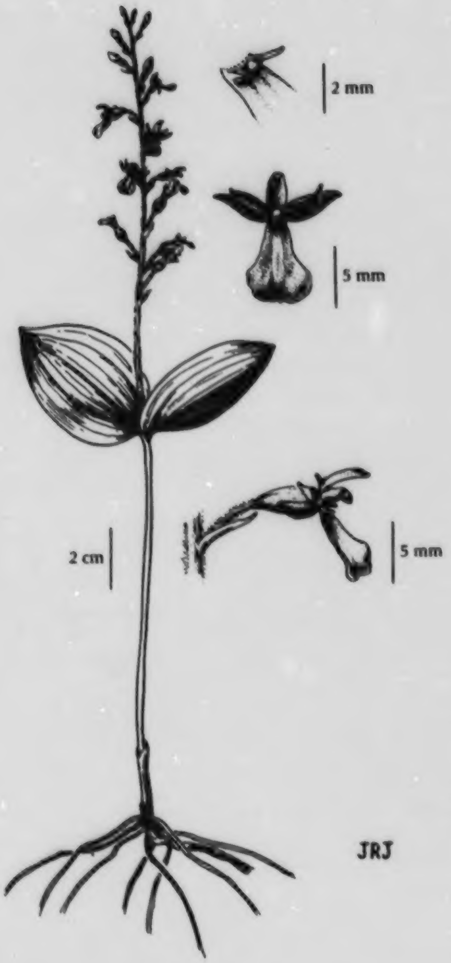
Leaves: Two, near middle of stem, roughly opposite, broadly egg-shaped, 2.5-7 cm long, 1.8-4.5 cm wide, abruptly tapered to base.

Flowers: Inflorescence a few- to many-flowered, terminal raceme, the flowers greenish to yellowish; sepals 3-4 mm long, narrowly lanceolate, 1-veined, distinct, spreading; petals similar to sepals, 2.8-3.5 mm long; lip 4.5-7 mm long, about 3.5 mm wide, wedge- to egg-shaped, rounded or with shallow notch at tip, with a pair of lateral threadlike teeth at base; column 1.5-2.5 mm long.

Fruits: Capsules, spreading, egg-shaped, to 7 mm long.



Listera borealis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Listera caurina

Listera convallarioides **(Swartz) Nutt.**

broad-leaved twayblade

HABITAT/RANGE:

Moist forests, bogs and streambanks in the montane zone; infrequent in BC south of 54° N, rare in NW BC; amphiberingian, N to AK, E to NF and S to ME, NH, MI, WI, MN, SD, CO, AZ and CA; E Asia.

DESCRIPTION:

General: Perennial herb from slender rhizomes, with fibrous roots; stems 10-35 cm tall, with 2 leaves, glandular-hairy above.

Leaves: Two, near middle of stem, roughly opposite, elliptic to broadly egg-shaped or nearly circular, 2-7 cm long, 1.5-6 cm wide, smooth, abruptly tapered to base.

Flowers: Inflorescence a many-flowered, terminal raceme, the flowers yellowish-green; sepals 4.5-6 mm long, narrowly lanceolate, 1-veined, distinct; petals similar to sepals but narrower, 4-5 mm long; lip 8-13 mm long, 5-7 mm wide at tip, broadly wedge-shaped, with a shallow notch at tip, base with a short triangular tooth on each side, short-clawed; column 2.5-3.5 mm long.

Fruits: Capsules, spreading, egg-shaped, to 4 mm long.

Listera cordata **(L.) R.Br.** (*L. cordata* var. *nephrophylla* [Rydb.] Hult.)

heart-leaved twayblade

HABITAT/RANGE:

Moist forests, bogs and thickets in the lowland to subalpine zones; common throughout BC, except infrequent north of 56° N; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, MI, WI, MN, NM, UT, NV and CA; Eurasia.

DESCRIPTION:

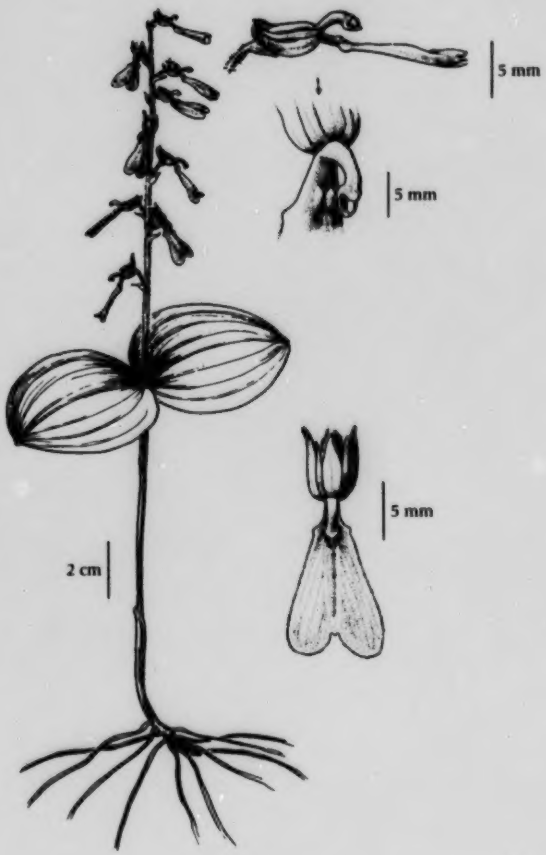
General: Perennial herb from slender rhizomes, with fibrous roots; stems 7-25 cm tall, with 2 leaves, smooth or slightly hairy above.

Leaves: Two, usually below middle of stem, opposite, broadly egg- to kidney-shaped, 1-4 cm long, 1-4 cm wide, smooth, heart-shaped at base, abruptly pointed at tip.

Flowers: Inflorescence a few- to several-flowered, terminal raceme, the flowers yellowish-green to purplish or maroon; sepals 2-3 mm long, egg-shaped; petals similar to sepals, 1.5-2.5 mm long; lip 3-6 mm long, linear to oblong, deeply cleft into 2 linear-lanceolate lobes, with 2 awl-like teeth at base; column 0.5-1.5 mm long.

Fruits: Capsules, spreading, egg-shaped, 4-6 mm long.

Notes: Some authors have recognized two varieties, the northwest cordilleran var. *nephrophylla* and the widespread, circumboreal var. *cordata*, based on leaf size and flower colour and size. But we concur with Calder & Taylor (1968) that there is significant overlap in these characters and in the range of the forms, thus distinct taxa are not warranted.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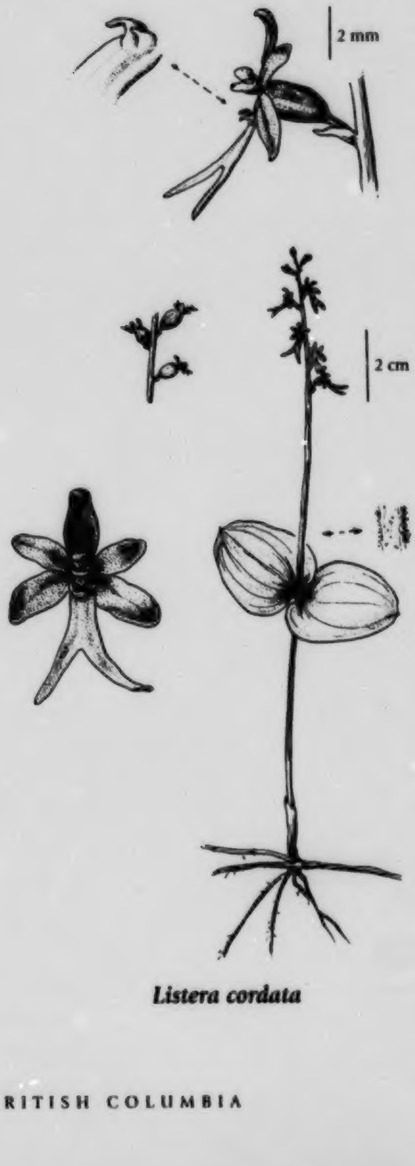
2 cm

Listera convallarioides



Listera cordata

MALAXIS

1. Leaves two or more, less than 3 cm long, indistinctly few-veined .... *M. paludosa*
1. Leaves one or two, 3-6 cm long, prominently several-veined.
    2. Basal leaves one; flowers with lips pointed downward .... *M. brachypoda*
    2. Basal leaves two, sometimes 3; flowers rotated so that lips are held erect .... *M. diphyllos*

Malaxis brachypoda **(A. Gray) Fern.** (*M. monophyllos* [L.] Swartz ssp. *brachypoda* [A. Gray] A.& D. Löve, *M. monophyllos* var. *brachypoda* [A. Gray] Morris & Eames)

white adder's-mouth orchid; one-leaved malaxis

HABITAT/RANGE:

Moist forests, mudflats, fens and streambanks in the lowland and montane zones; rare in coastal and N BC; N to AK, E to NF and S to ME, MA, PA, IN, IL, MN and disjunct in CO and CA; Japan.

DESCRIPTION:

General: Perennial herb from bulblike bases (corms) to 8 mm across, with a few fibrous roots; stems 10-20 cm tall, leafless, smooth, pale green.

Leaves: One, near base, egg-shaped to elliptic, 2-10 cm long, 2-5 cm wide, light green, keeled on back, the sheathing stalk 2-3 cm long.

Flowers: Inflorescence a loosely-flowered, terminal, spikelike raceme, the flowers small, greenish-white, the flower stalks about 2.5 mm long; bracts about 1.5 mm long, lanceolate; sepals 1-2 mm long, the upper erect, narrowly egg-shaped, the lateral 2 narrowly lanceolate, somewhat curved behind the lip; petals 1-2 mm long, linear, bent back, pointed at tips; lip 2 mm long and wide, drooping downward, broadly triangular, the base heart-shaped, the tip beaked; column less than 1 mm long.

Fruits: Capsules, ellipsoid, erect, to 5 mm long.

Malaxis diphyllos **Cham. & Schlecht.** (*M. monophyllos* [L.] Swartz var. *diphyllos* [Cham.] Luer)

Aleutian adder's-mouth orchid

HABITAT/RANGE:

Moist forests and streambanks in the montane zone; rare, known only from the Queen Charlotte Islands; N to AK.

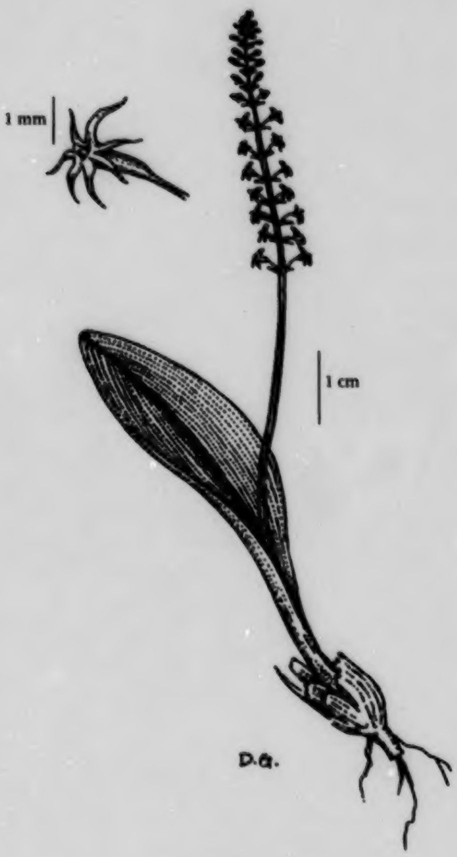
DESCRIPTION:

General: Perennial herb from bulblike bases (corms) to 1 cm across, with a few fibrous roots; stems 10-30 cm tall, leafless, smooth, pale green.

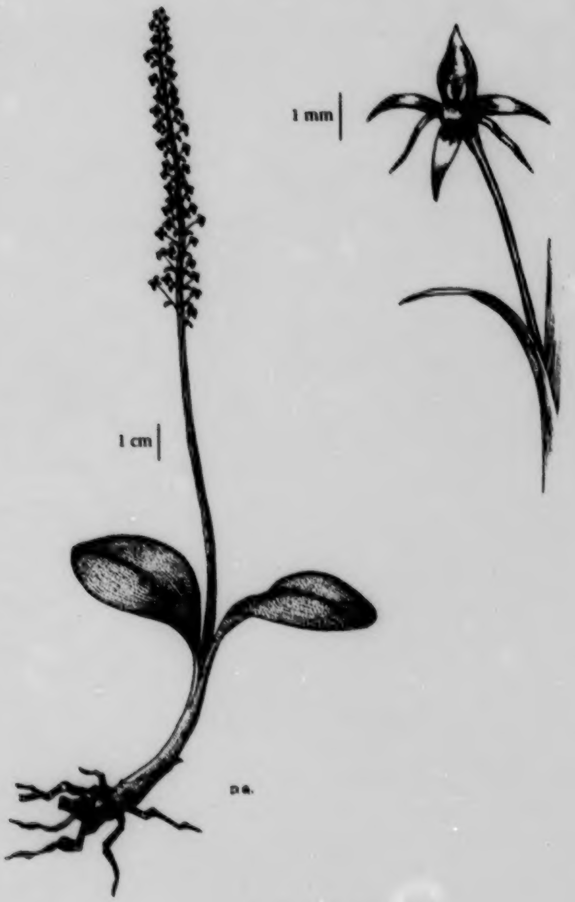
Leaves: Two, sometimes 3, almost opposite, oblong-elliptic, 2-10 cm long, 2-5 cm wide, yellow-green, the sheathing stalk 2-3 cm long.

Flowers: Inflorescence a densely-flowered, terminal spikelike raceme, the flowers small, yellowish, the flower stalks twisted, to 4.5 mm long; bracts about 2 mm long, 0.5 mm wide, lanceolate; sepals 1-2.5 mm long, the middle sepal narrowly egg-shaped, the lateral 2 lanceolate, somewhat curved behind the lip; petals 1-2 mm long, linear, bent back, pointed at tips; lip erect, 2.5 mm long, 2 mm wide, triangular, the base heart-shaped, the tip beaked; column less than 1 mm long.

Fruits: Capsules, ellipsoid, to 5 mm long, 3 mm wide.



Malaxis brachypoda



Malaxis diphyllos

Malaxis paludosa **(L.) Sw.** (*Hammarbya paludosa* [L.] Kuntze)

bog adder's-mouth orchid

Habitat/Range:

Bogs and muskegs in the lowland and montane zones; rare in WC BC, near the coast and in C BC; circumpolar, N to AK and NT, E to ON and S to MN; Eurasia.

Description:

General: Perennial herb from a bulblike bases (corms), with a few fibrous roots, the old corms often persisting, new corms forming in axils of leaves; stems 5-20 cm tall, leafless, slender, smooth, angled above.

Leaves: Two to 5 in a basal cluster, elliptic or egg-shaped, 1-3 cm long, pale green, the base broadly sheathing.

Flowers: Inflorescence a several- to many-flowered, terminal, spikelike raceme, the flowers small, yellowish-green; sepals 2-2.5 mm long, narrowly egg-shaped, the middle one drooping, the lateral 2 erect; petals 1-1.5 mm long, oblanceolate; lip erect, 1-2 mm long, egg-shaped, green-veined; column about 0.3 mm long.

Fruits: Capsules, egg-shaped, 4-6 mm long.

PIPERIA[2]

1. Spurs 2-6 mm long, at most slightly longer than lips.
    2. Flowers white, lips curved back toward spur .... *P. candida*
    2. Flowers green to translucent; lips straight or upcurved at tip .... *P. unalascensis*
1. Spurs 6-15 mm long, longer than lips.
    3. Flowers green or partly translucent; column oval, slightly longer than wide; plants usually tall and slender .... *P. elongata*
    3. Flowers white with green or yellow-green midvein; column oblong, about twice as long as wide; plants robust to delicate.
        4. Plants delicate, stems 1-3 mm across; spurs straight, horizontal; lips pointing forward; floral fragrance clovelike, nocturnal .... *P. transversa*
        4. Plants robust, stems more than 3 mm across; spurs more or less curved, parallel to axis of inflorescence; lips curving down in age; floral fragrance often heavy, not clovelike .... *P. elegans*

Piperia candida **Morgan & Ackerman**

white lip rein orchid

Habitat/Range:

Dry forests and forest margins in the lowland to montane zones; rare in coastal BC; N to AK and S to CA.

Description:

General: Perennial herb from tubers, 1-2.5 cm long, with a few fibrous roots; stems 20-55 cm tall.

Leaves: Basal 2 or 3 (4), linear to mostly oblanceolate, 10-18 cm long, 2-3.5 cm wide, dull to glossy green below, glossier above, withering before or during flowering; stem leaves bractlike, mostly 3 or 4 (2-10).

Flowers: Inflorescence terminal, spikelike, 7-30 cm long, usually densely-flowered, the flowers small, white, sometimes with green, faintly and unpleasantly scented; sepals 2-3.5 mm long, 1-2 mm wide, 1-veined, the upper sepal more or less pointed forward, white with a green midvein or green with white margins, the lower ones white with a faint green midvein, usually greenish early in flowering; petals 2-4 mm long, white with a green midvein, more or less pointed forward, the tips overlapping or nearly touching; lip 2-3 mm long, white, sometimes green at tip, narrowly triangular, bent back toward spur; spur 2-3.5 mm long, pointed downward; column shorter than lip.

Fruits: Capsules, ascending to erect, 5-9 mm long; seeds cinnamon brown.

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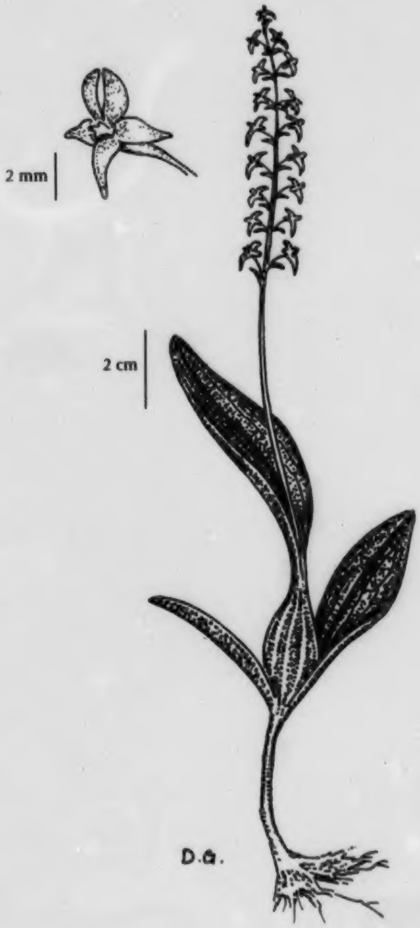
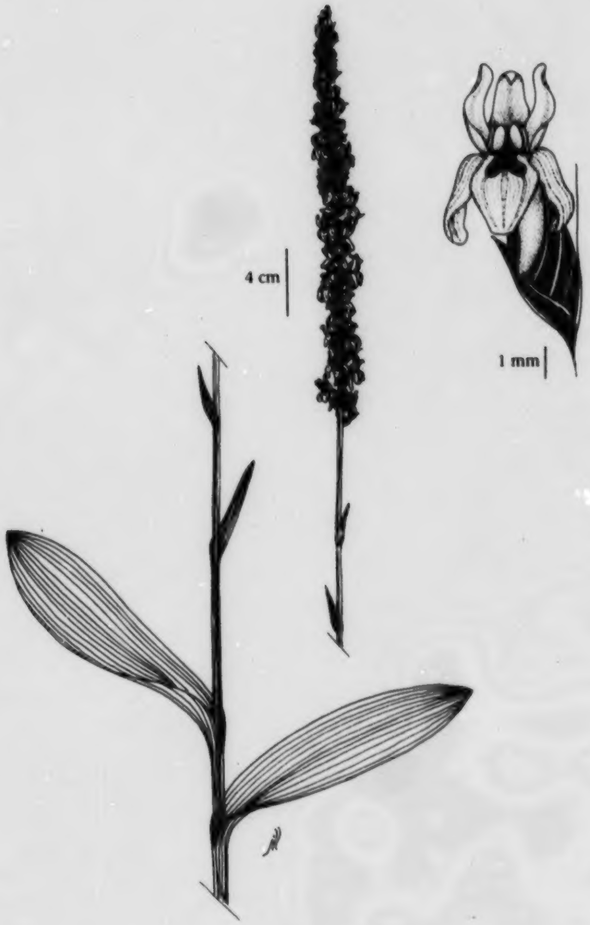
[2] Key modified from Morgan (1997).



Malaxis paludosa



Piperia candida

Piperia elegans **(Lindl.) Rydb.**, (*P. maritima* [Greene] Rydb., *Habenaria elegans* [Lindl.] Boland., *H. greenei* Jeps., *H. unalascensis* var. *maritima* [Greene] Correll, *Platanthera unalascensis* [Spreng.] Rydb. ssp. *maritima* [Rydb.] DeFilipps)

elegant rein orchid; seaside rein orchid

HABITAT/RANGE:

Dry to temporarily moist grassy meadows, depressions, and ditches in the lowland zone; infrequent in SW BC (Vancouver Island) and Queen Charlotte Islands; S to MT, ID, OR and CA.

DESCRIPTION:

General: Perennial herb from tubers, 1.5-4.5 cm long, with a few fibrous roots; stems 15-70 cm tall, more than 3 mm wide.

Leaves: Basal 2 or 3, rarely 4, oblanceolate, 6-30 cm long, 1-7.5 cm wide, blunt-tipped; stem leaves bractlike.

Flowers: Inflorescence a terminal, spikelike raceme, 3-40 cm long, usually densely-flowered, the flowers small, white to pale green, heavily scented; sepals 4-6.5 mm long, lanceolate, midvein dark green, the upper sepal more or less erect; petals 4-6 mm long, lanceolate, white or pale green with green midvein or base, spreading to erect; lip 3.5-6.5 mm long, lanceolate, more or less curved downward; spur 6-14 mm long, curved, pointed downward; column oblong, about twice as long as wide.

Fruits: Capsules, ascending to erect, 5-11 mm long.

Piperia elongata **Rydb.** (*P. elegans* var. *elata* [Jepson] Luer, *Habenaria unalascensis* var. *elata* [Jeps.] Correll, *Platanthera unalascensis* [Spreng.] Kurtz ssp. *elata* [Jeps.] Taylor & MacBryde)

tall rein orchid

HABITAT/RANGE:

Dry forests, forest margins and shrublands in the lowland to montane zones; infrequent in S BC; S to ID, MT, OR and CA.

DESCRIPTION:

General: Perennial herb from tubers, 1-4 cm long, with a few fibrous roots; stems 20-100 cm tall.

Leaves: Basal 2 to 5, oblanceolate, 6-30 cm long, 1-6.5 cm wide, blunt-tipped; stem leaves bractlike.

Flowers: Inflorescence a terminal, spikelike raceme, 15-30 cm long, open to densely-flowered, the flowers small, green, not scented; sepals 2-5.5 mm long, lanceolate, the upper sepal more or less erect, the lateral somewhat bent back; petals 2-5.5 mm long, sickle-shaped, usually erect; lip 2-5.5 mm long, triangular, bent back; spur 6.5-15 mm long, slender, commonly pointed downward; column oblong, about twice as long as wide.

Fruits: Capsules, ascending to erect.

Piperia transversa **Suksdorf**

royal rein orchid

HABITAT/RANGE:

Dry, open forests, forest margins and rocky bluffs in the lowland to montane zones; infrequent in SW BC (Vancouver Island); S to CA.

DESCRIPTION:

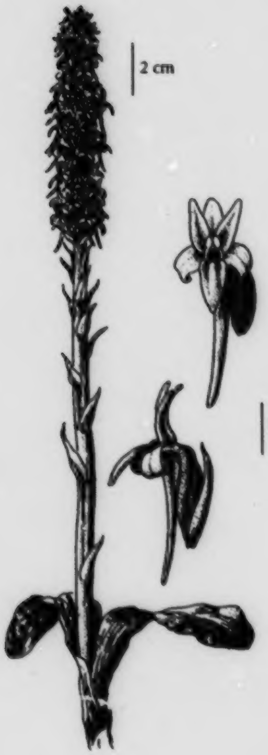
General: Perennial herb from tubers, 1-4 cm long, with a few fibrous roots; stems 15-55 cm tall, 1-3 mm wide.

Leaves: Basal 2 to 5, oblanceolate, 6-18 cm long, 1-4 cm wide; stem leaves bractlike.

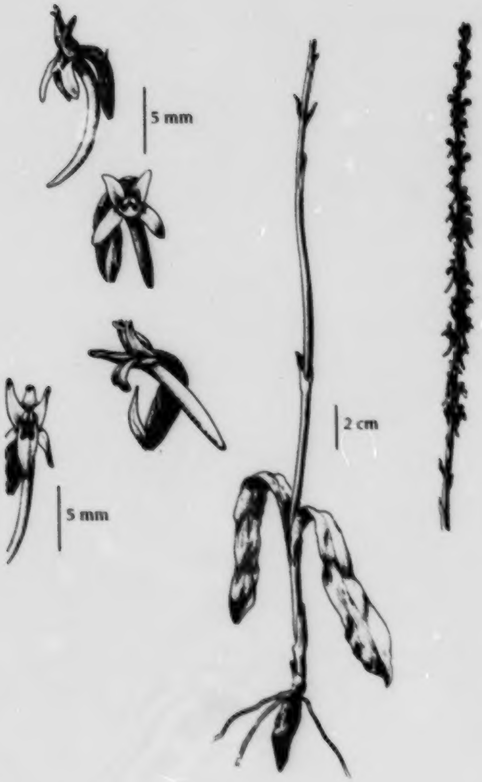
Flowers: Inflorescence a terminal, spikelike raceme, 7-25 cm long, open to densely-flowered, the flowers small, white to yellowish, clovelike scent noticeable in evenings; sepals 2-5.5 mm long, lanceolate, the midvein green, the upper sepal pointed forward; petals 2-5.5 mm long, lanceolate, the midvein green, spreading, somewhat bent back; lip 2.5-5 mm long, oblong to somewhat egg-shaped, white, pointed forward or down; spur 6-10 mm long, horizontal, straight, pointed backward.

Fruits: Capsules, ascending to erect.

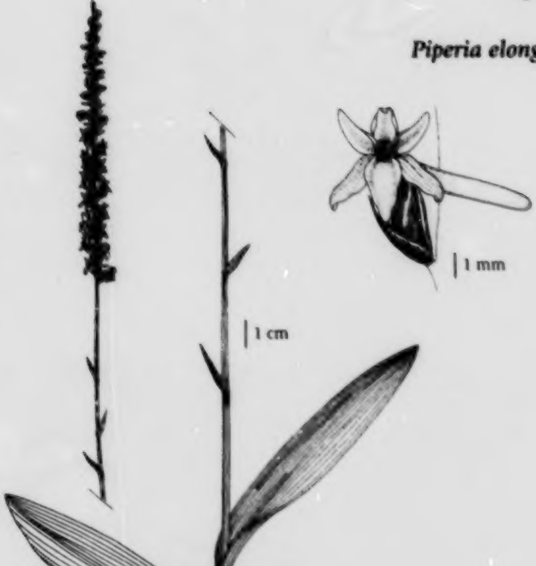
Notes: Where *P. candida*, *P. elongata*, and *P. transversa* grow together, *P. transversa* blooms first.



Piperia elegans



Piperia elongata



Piperia transversa

Piperia unalascensis **(Spreng.) Rydb.** (*Habenaria unalascensis* [Spreng.] S. Wats., *Platanthera unalascensis* [Spreng.] Kurtz)

Alaska rein orchid

HABITAT/RANGE:

Dry to moist coniferous forests, grassy slopes, meadows, thickets and streambanks in the lowland, steppe and montane zones; frequent throughout BC south of 56° N, especially east of the Coast-Cascade Mountains; N to AK, E to NF and S to MI, SD, NM, UT, NV and CA; Baja CA.

DESCRIPTION:

General: Perennial herb from tubers, 1-4 cm long, with a few fibrous roots; stems 15-90 cm tall.

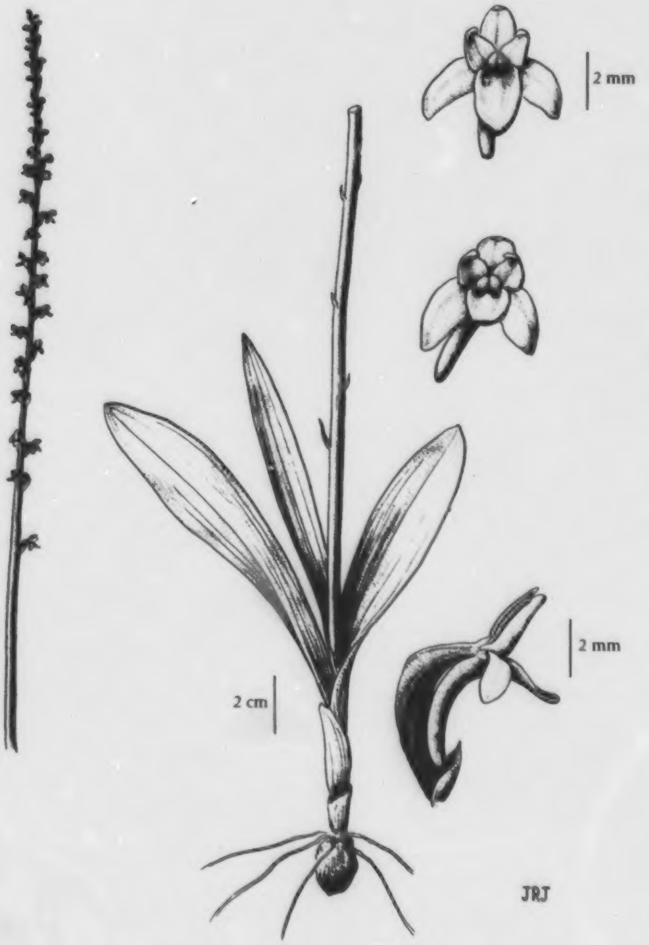
Leaves: Basal 2 to 5, oblanceolate, 7-15 cm long, 0.5-4 cm wide; stem leaves bractlike.

Flowers: Inflorescence a terminal, spikelike raceme, 5-40 cm long, usually open, sometimes densely-flowered above, the flowers small, green, faintly-scented, the scent pleasant; sepals 2-5.5 mm long, lanceolate, the upper sepal ascending or pointed forward; petals 2-5.5 mm long, lanceolate, somewhat erect to pointed forward; lip 2-5 mm long, oblong to triangular, usually pointed downward, the tip upcurved; spur 1.5-5 mm long, pointed back or downward.

Fruits: Capsules, ellipsoid, ascending to erect.

PLATANTHERA

1. Leaves one or two, essentially basal; stems lacking bracts, or with one at or above the middle of the stems.
    2. Leaves one .... *P. obtusata*
    2. Leaves two.
        3. Plants less than 20 cm tall; leaves 2.5-6 cm long, erect or spreading; spurs about 1 mm long .... *P. chorisiana*
        3. Plants 20-60 cm tall; leaves 6-16 cm long, lying flat on ground; spurs 15-25 mm long .... *P. orbiculata*
1. Leaves and bracts usually several, on stem or near base.
    4. Flowers white, fragrant; lips moderately to strongly dilated toward base .... *P. dilatata*
    4. Flowers usually whitish-green, yellowish-green or green, fragrant or not; lips usually gradually tapered toward base.
        5. Spurs scrotum- to sac-shaped, usually much shorter than lip; lips linear to lanceolate; flowers scentless or faintly spicy .... *P. stricta*
        5. Spurs cylindrical to club-shaped, nearly as long as lip, but may appear shorter due to position and shape; lips linear to rhombic-lanceolate, sometimes dilated at base; flowers scentless to strongly fragrant.
            6. Spurs stout, club-shaped, blunt-tipped; lips diamond-lanceolate, yellowish to yellow-green; anther sacs only slightly elevated, widely diverging at base, tips close together; flowers usually scentless, but can be fragrant in BC; lips 2.5-6 mm long; spurs usually shorter than lips .... *P. aquilonis*
            6. Spurs slenderly cylindrical to somewhat club-shaped, the tips gently tapered; lips lanceolate, usually slightly dilated at base, whitish-green; anther sacs elevated, almost parallel or diverging slightly at base; flowers moderately to strongly fragrant; lips 5-12 mm long; spurs usually about as long as lips .... *P. huronensis*


2 mm
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2 cm
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Piperia unalascensis

***Platanthera aquilonis* Sheviak** (*P. hyperborea auct. non* [L.] Lindl.)

northern green rein orchid; northern green bog orchid

HABITAT/RANGE:

Wet meadows, grassy slopes, stream and lake margins, bogs, swamps and open forests in the montane to alpine zones; common in BC, east of the Coast-Cascade mountains; N to AK, YT and NT, E to NF and S to PA, NE, NM, UT, ID, OR, and WA.

DESCRIPTION:

General: Perennial herb from lance- to spindle-shaped stem-bases, with a few fibrous roots; stems 5-60 cm tall, thick, soft, leafy.

Leaves: 3 or more along stem, oblong to linear-lanceolate, 3-25 cm long, 0.4-4 cm wide, ascending to spreading, gradually reduced to bracts above.

Flowers: Inflorescence a few- to densely-flowered spike, the flowers small, yellowish-green, with bracts; lateral sepals spreading to bent back, lanceolate, the upper sepal egg-shaped to nearly elliptic, slightly hooded at tip; petals egg-shaped to lance or scythe-shaped; lip rhomboid to lanceolate, 2.5-6 mm long, 1-1.5 mm wide, descending, entire, the base not round-dilated; spur 2-5 mm long, club-shaped or sometimes somewhat cylindrical; anther sacs appearing atop stigma, the tips close together or touching, the bases widely diverging; viscidia round.

Fruits: Capsules, ascending to erect.

Notes: Much of what has been identifed as *P. hyperborea* (L.) Lindl. in BC is *P. aquilonis*. Some material could be *P. huronensis*. Collections of *P. hyperborea* from Vancouver Island most likely are *P. stricta*. Further field collections are required to understand the distribution of *P. aquilonis* and *P. huronensis* in BC.

***Platanthera chorisiana* (Cham.) Reichenb. f.** (*Habenaria chorisiana* Cham.)

Chamisso's rein orchid; small bog orchid

HABITAT/RANGE:

Sphagnum bogs, bog forests, and swamps in the lowland and montane zones; infrequent in coastal BC; N to AK and S to WA; Japan.

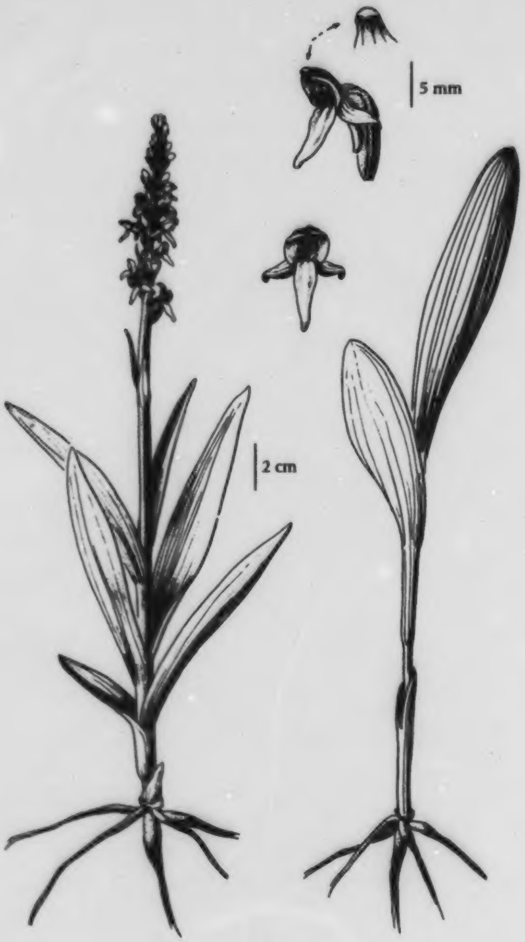
DESCRIPTION:

General: Perennial herb from spindle-shaped stem-bases, with a few fibrous roots; stems 5-20 cm tall, with 1 or 2 bracts to 2 cm long.

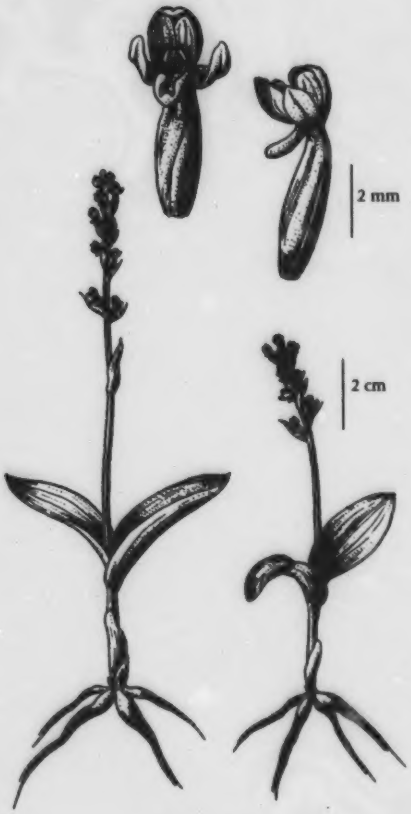
Leaves: Usually 2 or 3 nearly basal leaves nearly circular or egg-shaped to lanceolate, 2.5-6 cm long, about 1/2 as wide, sheathing.

Flowers: Inflorescence a terminal, 5- to 18-flowered, crowded spike, the flowers small, greenish, unstalked, the lower flowers shorter than floral bracts; sepals 2 mm long, oblong, 1-veined, the upper sepal slightly hooded; petals strongly 3-veined, slightly shorter and wider than sepals; lip 1.5-2 mm long, nearly as wide, concavely curved, the margins slightly lobed, erect; spur barely 1 mm long, slightly curved, bulbous; column plump, about 1 mm long.

Fruits: Capsules, ascending to erect.



Platanthera aquilonis



Platanthera chorisiana

Platanthera dilatata **(Pursh) Lindl. *ex* Beck** (*Habenaria dilatata* [Pursh] Hook. = var. *dilatata*; *H. dilatata* var. *albiflora* [Cham.] Correll = var. *albiflora*; *H. dilatata* var. *leucostachys* [Lindl.] Ames = var. *leucostachys*)
fragrant white rein orchid; fragrant white bog orchid

HABITAT/RANGE:

Wet meadows, seepage slopes, bogs, stream and lake margins and open forests in the montane to alpine zones; common throughout BC, except var. *albiflora*, rare in S BC; var. *albiflora* – N to AK, E to NF and S to CO, UT, ID and OR; var. *dilatata* – N to AK, YT and NT, E to ME, MA, NY, IN, IL, MN, SD, NM, UT, NV and OR; var. *leucostachys* – N to AK and S to WY, AZ and CA; Greenland.

DESCRIPTION:

General: Perennial herb from spindle-shaped stem-bases, with a few fibrous roots; stems 15-100 cm tall, leafy.

Leaves: Basal and stem leaves oblong to linear or lanceolate, 10-30 cm long.

Flowers: Inflorescence a terminal, 5- to 30-flowered spike, the flowers white, very fragrant, unstalked; sepals 3-9 mm long, broadly lanceolate, 3(4)-veined, the upper sepal egg-shaped, erect, converging with the petals and forming a hood; petals 1- to 2-veined, slightly shorter and wider than sepals; lip linear-lanceolate to lanceolate, 5-10 mm long, strongly round-dilated at base; spur 5-10 mm long, slenderly cylindric to slightly club-shaped, slightly curved; column about 2 mm long.

Fruits: Capsules, ascending to erect.

Notes: Three varieties occur in BC:

1. Spurs up to two-thirds the length of lips .... var. *albiflora* (Cham.) Ledeb.
1. Spurs equaling the lips or slightly longer.
    2. Spurs 1.5-2 times longer than lips, very slender, strongly curved .... var. *leucostachys* (Lindl.) Luer
    2. Spurs about the length of the lips, not very slender, not strongly curved .... var. *dilatata*

Platanthera huronensis **(Nutt.) Lindl.** (*P. hyperborea* [L.] Lindl. var. *huronensis* [Nutt.] Luer)
Great Lakes rein orchid; green bog orchid

HABITAT/RANGE:

Wet grassy slopes, stream and lake margins, bogs, swamps and open forests in the montane to alpine zones; infrequent in BC, east of the Coast-Cascade mountains; N to AK, E to NF and S to ME, MA, NY, MI, WI, MN, IA and CO.

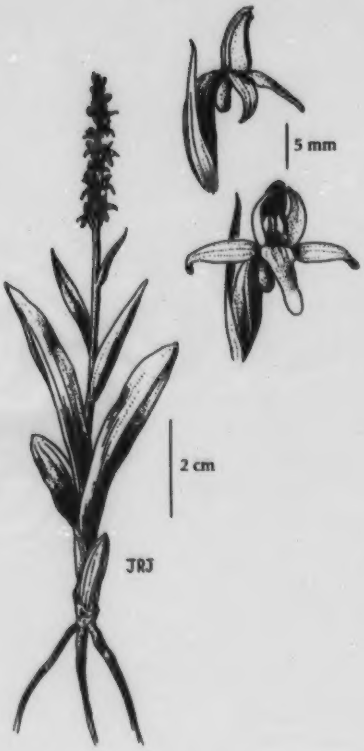
DESCRIPTION:

General: Perennial herb from spindle-shaped stem-bases, with a few fibrous roots; stems 15-100 cm tall, leafy.

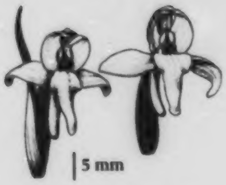
Leaves: 3 or more along stem, oblong to linear-lanceolate, 5-30 cm long, 0.6-7 cm wide, ascending, gradually reduced to bracts above.

Flowers: Inflorescence a few- to densely-flowered spike, the flowers whitish-green, with bracts; lateral sepals spreading to slightly bent back, lanceolate, the upper sepal egg-shaped to nearly elliptic, slightly hooded at tip; petals egg-shaped to lance- or scythe-shaped; lip lanceolate to linear, 5-12 mm long, 2-4 mm wide, descending, entire, the base slightly to noticeably round-dilated; spur 4-12 mm long slenderly cylindrical to somewhat club-shaped, the tips gently tapered; anther sacs high, rising above stigmas, the tips separated, the bases diverging slightly; viscidia oblong.

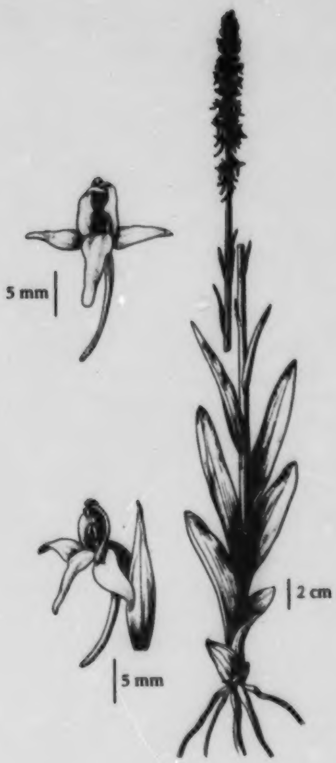
Fruits: Capsules, ascending to erect.



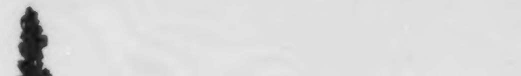
Platanthera dilatata var. albiflora



var. dilatata



Platanthera dilatata var. leucostachys



Platanthera huronensis

Platanthera obtusata **(Banks *ex* Pursh) Lindl. ssp. *obtusata*** (*Habenaria obtusata* [Banks *ex* Pursh] Richards.)
one-leaved rein orchid

HABITAT/RANGE:

Moist to wet forests, bogs, swamps and streambanks in the montane zone; infrequent throughout BC, except absent from the coast; N to AK, YT and NT, E to NF and S to ME, MA, NY, MI, WI, MN, CO, UT, ID and OR.

DESCRIPTION:

General: Perennial herb, from a few fleshy-tuberous roots; stems 10-30 cm tall, without leaves.

Leaves: Single basal leaf, oblanceolate to elliptic or egg-shaped, 5-15 cm long, 1-5 cm wide, blunt-tipped, long-tapering to base.

Flowers: Inflorescence a terminal, loosely 3- to 15-flowered spike, bracted; flower bracts green and up to 15 mm long below, yellowish and much reduced above; flower stalks 1-5 mm long; flowers pale green to yellow-green, sometimes the lip or petals whitish; lower sepals 4-6 mm long, elliptic-lanceolate, somewhat bent back, the upper sepal kidney-shaped to nearly round, 3-4 mm long, somewhat erect, arching over column; petals broadly lanceolate, curved upward, contacting the upper sepal; lip 5-10 mm long, lance-linear, greenish-white, hanging downward with slightly up-curved tip; spur slender, pointed, tapering from base, somewhat curving, as long as lip; column 2-3.5 mm long.

Fruits: Capsules, erect, ellipsoid, to 10 mm long.

Platanthera orbiculata **(Pursh) Lindl.** (*Habenaria orbiculata* [Pursh] Torr.)
large round-leaved rein orchid

HABITAT/RANGE:

Dry to moist forests, bogs and swamps in the montane zone; infrequent in BC south of 55° N, except rare on the coast; N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, TN, MN, SD, MT, ID and WA.

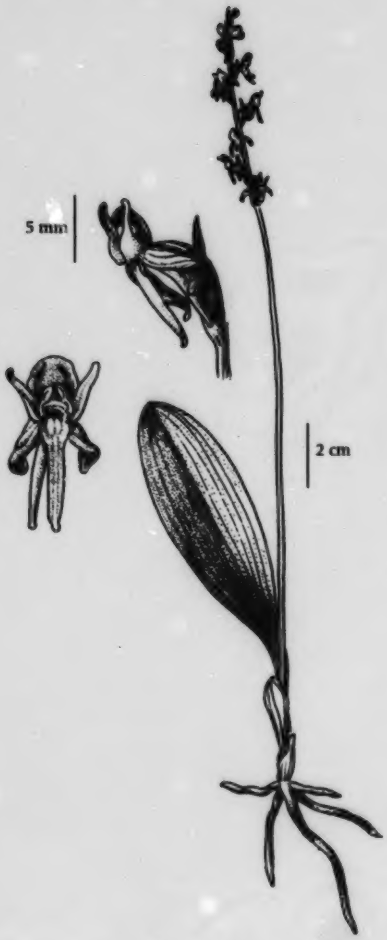
DESCRIPTION:

General: Perennial herb, from fleshy, spindle-shaped stem-bases, with a few fibrous roots; stems 20-50 cm tall, without leaves, with 1-5 lance-shaped bracts.

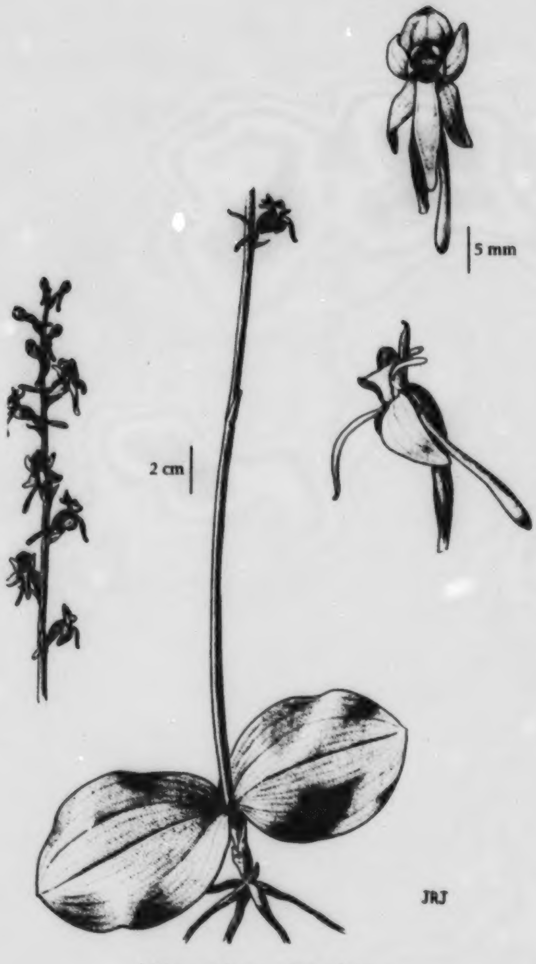
Leaves: Pair of basal leaves, opposite or nearly so, often lying on ground, round to oblong-elliptic, usually 6-16 cm long, 3-14 cm wide.

Flowers: Inflorescence a terminal, loosely 5- to 25-flowered spike, bracted, the bracts shorter than the flowers; flowers whitish-green, the stalks 3-7 mm long; lower sepals 8-13 mm long, triangular to broadly lanceolate, somewhat bent back, the upper sepal kidney-shaped to broadly egg-shaped, 4-8 mm long, erect; petals shorter and lighter than sepals, egg-shaped to broadly lanceolate, bent back; lip 10-20 mm long, strap-shaped, whitish, hanging downward with slightly up-curved tip; spur somewhat club-shaped, curved, 15-25 mm long; column 4-5 mm long.

Fruits: Capsules, erect, curved, to 20 mm long.



Platanthera obtusata ssp. *obtusata*



Platanthera orbiculata

Platanthera stricta **Lindl.** (*Habenaria stricta* [Lindl.] Rydb., *H. saccata* Greene, *Platanthera gracilis* Lindl.)

slender rein orchid; slender bog orchid

HABITAT/RANGE:

Moist meadows, coniferous forests, swamps and bogs in the montane zone; common throughout BC south of 55° N, rare northward; N to AK and YT, E to AB and S to SD, NM, AZ and CA.

DESCRIPTION:

General: Perennial herb from tuberous, spindle-shaped stem-bases, with a few fibrous roots; stems 35-80 (100) cm tall, stout, leafy.

Leaves: Lowest oblong-elliptic, 3-10 cm long, over 1/3 as wide, tips rounded to blunt, the other leaves 5-15 cm long, lanceolate, tips pointed, reducing into bracts above, the leaves generally widely diverging from stem.

Flowers: Inflorescence a slender, open spike, the flowers small, green, usually lightly scented, bracted, the bracts of the lower flowers 2-5 cm long, leaflike, much reduced in upper flowers; lateral sepals 4-6 mm long, broadly lanceolate, thin, 3-veined, spreading, the upper sepal broadly egg-shaped, slightly hooded at tip, 3-5 mm long; petals lanceolate to egg-shaped, fleshy, often purplish-tinged, asymmetric, in close contact with upper sepal, forming a hood; lip narrowly oblong or linear, 5-8 mm long; spur generally much shorter than lip but sometimes nearly as long, inflated, scrotum- or sac-shaped, only slightly, if at all curved; column short and thick, about 2 mm long.

Fruits: Capsules, erect, to 15 mm long.

Notes: Although spurs of *P. stricta* are generally much shorter than the lips, many plants from Vancouver Island populations have scrotum-like spurs nearly as long as their linear lips. Occasionally, spurs much longer than the lips are found – such plants probably are hybrids between *P. stricta* and *P. dilatata* var. *leuchostachys*. Plants referred to *P. gracilis* are included within the range of variation of *P. stricta* – they are florally similar to slender-spurred extremes of *P. stricta* and differ only in reduced leaves.

SPIRANTHES

Spiranthes romanzoffiana **Cham.**

hooded ladies' tresses

HABITAT/RANGE:

Dry to moist forests, bog forests, bogs, meadows, and open depressions in the lowland to montane zones; frequent throughout BC, south of 55° N, infrequent northward; N to AK, YT and NT, E to NF and S to ME, MA, PA, OH, IN, IL, IA, SD, NM, AZ and CA; British Isles.

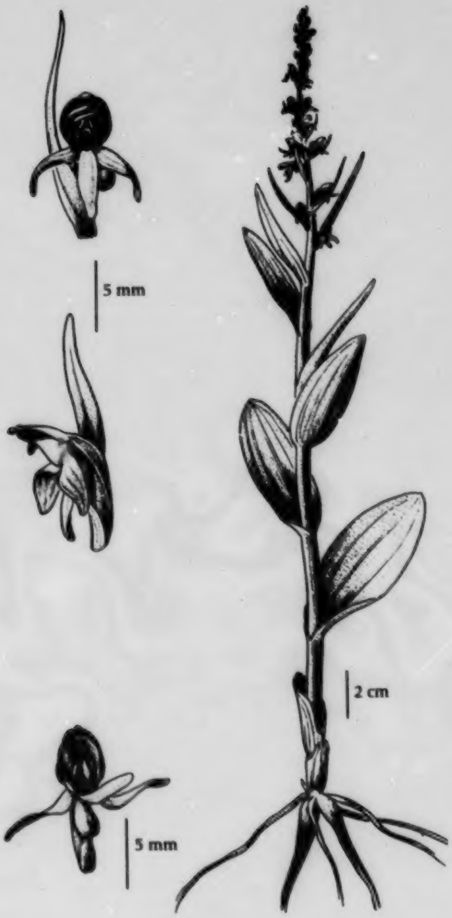
DESCRIPTION:

General: Perennial herb from long, fleshy, tuberous roots, with a few fibrous ones; stems 10-50 cm tall, leafy below, bracted above.

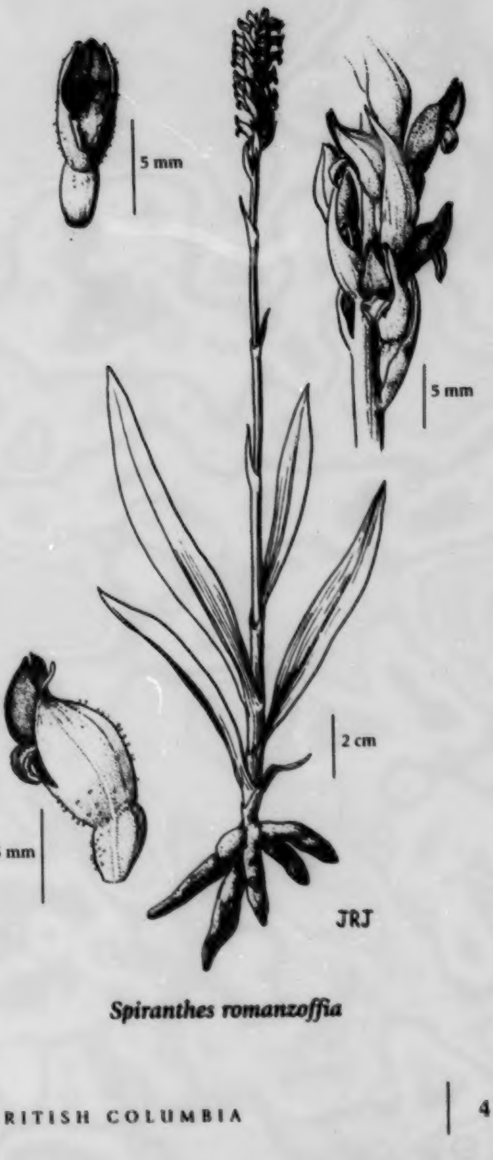
Leaves: Basal linear to linear-lanceolate, 5-20 cm long, usually 5-10 mm wide, some stem leaves but soon reduced into short, sheathing, lance-shaped bracts above.

Flowers: Inflorescence a dense, bracted, cylindrical spike, the flowers creamy-white to greenish-white, usually in three somewhat spiralling vertical rows, the bracts 10-20 mm long, about the length of the flowers, whitish or pale green; sepals and petals to 12 mm long, the lateral sepals narrowly egg-shaped, the tips bent back, the upper sepal and petals about equal in length, forming a curved, tubular hood 7-12 mm long; lip egg-shaped, about length of sepals, veined, strongly curved downward, constricted above the middle, widened below into an egg-shaped, terminal lobe; spur absent; column 2-4 mm long.

Fruits: Capsules, to 10 mm long.



Platanthera stricta


5 mm
5 mm
2 cm
5 mm
JRJ

Spiranthes romanzoffia

POACEAE[3]

1. Spikelets dorsally compressed, the glumes and fertile lemmas more or less flattened or merely arching, the spikelets sometimes circular in cross-section, tapered, but then the caryopsis (grass fruit) somewhat plano-convex; perfect florets 1, terminal in the spikelets, usually subtended by sterile or staminate florets; spikelets disarticulating below the glumes, the spikelets falling entire, either singly or in pairs with segments of the rachis .... GROUP 1

1. Spikelets usually more or less laterally compressed, sometimes circular in cross-section, tapered; perfect florets 1 to many, the reduced florets, when present, above the perfect ones (except in *Arrhenatherum*, *Hierochloë* and *Phalaris* – the first genus has 1 subtending male floret while the latter 2 genera have 2 subtending rudimentary or male florets; spikelets disarticulating either above or below the glumes.
    2. Glumes lacking; spikelets 1-flowered; paleas nearly equal to the lemmas and 3-nerved.
        3. Flowers imperfect; stamens 6; plants aquatic annuals .... *Zizania*
        3. Flowers perfect; stamens 2 or 3; plants either perennial or non-aquatic.
            4. Plants 2-8 (10) cm tall; leaf blades 0.5-1.5 mm wide, the margins smooth; sheaths strongly inflated .... *Coleanthus*
            4. Plants (30) 60-15 (200) cm tall; leaf blades (2) 6-10 mm wide, the margins rough with the projections angled downwards; sheaths not strongly inflated .... *Leersia*
    2. Glumes present (only 1 in *Lolium*, except on the terminal spikelets); spikelets various; paleas, if present, 2-nerved.
        5. Spikelets usually with 2 staminate or rudimentary florets (which may look like hairs or scales) below the terminal fertile florets.
            6. Glumes distinctly unequal, the lower 1-nerved and only about 1/2 as long as the upper; lower two florets sterile, the lemmas awned from the back; lodicules lacking .... *Anthoxanthum*
            6. Glumes nearly equal, both usually 3-nerved; lower two florets either male or sterile, the lemmas awnless; lodicules usually present.
                7. Lower florets male; spikelets brown and shiny; ear-shaped lobes absent at the leaf-bases .... *Hierochloë*
                7. Lower florets empty and much reduced; spikelets green or yellowish; ear-shaped lobes often present at the leaf-bases .... *Phalaris*
        5. Spikelets without reduced florets below the perfect floret(s).
            8. Spikelets unstalked or short-stalked (when more than one at a node some of the group usually short-stalked); inflorescence a single spike, or 2 or more digitately or racemosely arranged spikelike branches (the spikelike branches of *Beckmannia* and *Lolium* sometimes arranged in panicles) .... GROUP II
            8. Spikelets stalked (if unstalked or nearly unstalked then inflorescence not as above); inflorescence open or congested, sometimes a spikelike panicle, rarely a raceme, usually reduced to a single spikelet in *Danthonia unispicata*.
                9. Spikelets 2- to many-flowered.
                    10. Glumes shorter than the lowest florets; lemmas awnless or awned from the tips or from bifid tips, the awns rarely partly on the backs .... GROUP III
                    10. Glumes, at least the upper ones as long as or longer than the lowest florets, often as long as the spikelets (sometimes slightly shorter than the lower florets in *Koeleria* and *Sphenopholis*); lemmas with awns on the backs or awnless (awned from bifid tips in *Danthonia* and *Koeleria*) .... GROUP IV
                9. Spikelets 1-flowered (rarely 2 in *Calamagrostis*) .... GROUP V

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[3] Key adapted from Holmgren and Holmgren (1977).

GROUP I

1. Glumes stiff; sterile lemmas, fertile lemmas and paleas translucent or membranous, the 2 lemmas usually alike in texture .... *Schizachyrium*
1. Glumes membranous; sterile lemmas resembling the upper glumes and appearing like third glumes; fertile lemmas and paleas stiff or at least firmer than the glumes.
   2. Spikelets subtended by bristles or enclosed in prickly burs (involucres).
      3. Spikelets subtended by 1 to many bristles, the spikelets deciduous and the bristles persistent .... *Setaria*
      3. Spikelets enclosed in prickly burs, the burs dropping intact from the rachis at maturity .... *Cenchrus*
   2. Spikelets not subtended by bristles or enclosed in prickly burs.
      4. Glumes and sterile lemmas usually awned; spikelets in irregular clusters along one side of the panicle branches, the spikelets stiffly hairy, the hairs bristlelike .... *Echinochloa*
      4. Glumes and sterile lemmas awnless.
         5. Spikelets in a 1-sided raceme .... *Digitaria*
         5. Spikelets in an open or compact panicle.
            6. Plants perennials; upper glumes and sterile lemmas short soft-hairy all over (sometimes smooth in *Dicanthelium oligosanthes*); basal leaves distinctly different from the stem leaves, forming a winter rosette; plants passing from one growth phase to another, the so-called vernal phase characterized by simple stems and terminal panicles becoming transformed to the autumnal phase with branched stems and axillary, often cleistogamous panicles (with small, closed, self-fertilized flowers) .... *Dichanthelium*
            6. Plants annuals; upper glumes and sterile lemmas smooth, or sometimes more or less rough only on the nerves towards the tips; basal leaves similar to the stem leaves, not forming a winter rosette .... *Panicum*

GROUP II

1. Spikelets or spikelet clusters alternate on opposite sides of the rachis; spikes terminal, solitary; leaves often with ear-shaped lobes at the bases.
   2. Lower glumes lacking, except in the terminal spikelets; spikelets with the broad side of lemmas against the rachis .... *Lolium*
   2. Both glumes present on all spikelets; spikelets with the narrow side of the lemmas against the rachis.
      3. Spikelets in clusters of three at each node, each spikelet with only 1 floret, those of the lateral spikelets usually sterile or with only male flowers, often greatly reduced .... *Hordeum*
      3. Spikelets 1 to 4 (5) at each node, each with 2 or more florets, the terminal florets often reduced; spikelets all alike.
         4. Plants annual, weedy or cultivated as cereal grains or planted for erosion control; introduced.
            5. Spikes elliptical to egg-shaped, 1-2.5 cm long .... *Eremopyrum*
            5. Spikes narrowly cylindrical, 5-15 cm long.
               6. Spikelets paired at each node; glumes strongly keeled below .... *Secale*
               6. Spikelets solitary at each node; glumes rounded below .... *Triticum*
         4. Plants perennial, mostly not weedy, a few used in erosion control or range "improvement"; mostly native species.

7. Rachis internodes 0.5-3 mm long; spikelets strongly diverging from the rachis .... *Agropyron*
7. Rachis internodes 5-25 mm long; spikelets ascending or appressed to the rachis.
    8. Spikelets always 2 or more at each node.
        9. Lemma awns absent or less than 3.5 mm long; anthers more than 2.5 mm long; plants rhizomatous or glumes both short and awnlike .... *Leymus*
        9. Lemmas often with an awn greater than 3 mm; anther length varied; plants caespitose or the glumes not awnlike (or both) .... *Elymus*
    8. Spikelets 1 per node.
        10. Spikelets with narrow side facing the axis .... *Lolium*
        10. Spikelets with broad side against the axis.
            11. Spikelet length more than 3 times spike internode length .... *Agropyron*
            11. Spikelet length 1 to 3 times spike internode length.
                12. Glumes lanceolate, stiff and shorter than the spikelets but more than 5 mm long .... *Pascopyrum*
                12. Glumes egg-shaped or bluntly lanceolate, less than 5 mm long.
                    13. Glumes stiff, brittle and blunt .... *Thinopyrum*
                    13. Glumes flexible, sharp-pointed to awned.
                        14. Spikelets spread out along the axis, scarcely overlapping .... *Pseudoroegneria*
                        14. Spikelets closely spaced, overlapping .... *Elymus*

1. Spikelets in 2 rows, along 2 sides of a 3-angled, continuous rachis, forming 1-sided spikes or racemes, these spikelike branches usually 2 to several, digitately, racemosely or paniculately arranged on a central axis; leaves without ear-shaped lobes.
    15. Spikelets with 2 to 3 perfect florets .... *Leptochloa*
    15. Spikelets with only one perfect floret, often with additional imperfect florets, these usually rudimentary.
        16. Spikelets with 1 or more modified (commonly sterile) florets above the perfect one .... *Bouteloua*
        16. Spikelets without additional modified florets, the rachillas sometimes prolonged.
            17. Spikelets disarticulating above the glumes .... *Cynodon*
            17. Spikelets disarticulating below the glumes and falling entirely.
                18. Spikes 2-5 cm long; glumes unequal, linear to narrowly lanceolate, the keels rough or fringed with fine hairs; lemmas 5-8.5 mm long; ligules blunt, less than 1 mm long .... *Spartina*
                18. Spikes 1-2 cm long; glumes more or less equal, nearly circular, the keels smooth; lemmas 1.8-3.5 mm long; ligules pointed, 6-11 mm long .... *Beckmannia*

GROUP III

1. Plants with female and male flowers on different plants (ours); lemmas smooth to rough, not long-hairy .... *Distichlis*
1. Plants with bisexual flowers or with both female and male flowers on the same plant, except in some species of *Poa* with long-hairy lemmas.
    2. Plants tall, stout reeds, 200-300 cm tall, with large, plume-like panicles; rachillas with long, spreading hairs .... *Phragmites*

2. Plants not reed-like, rarely up to 200 cm tall; rachillas without long, spreading hairs.
3. Lemmas 3-nerved, the nerves usually prominent.
4. Spikelets (5) 6- to many-flowered .... *Eragrostis*
4. Spikelets 2- to 3-flowered.
5. Spikelets 2- or 3-flowered; glumes 1-nerved .... *Muhlenbergia*
5. Spikelets 2-flowered; glumes nerveless .... *Catabrosa*
3. Lemmas mostly 5- or more-nerved, if 3-nerved, the nerves usually obscure.
6. Callus of the florets bearded.
7. Lemmas awnless.
8. Plants aquatic; leaf blades flat at the tips .... *Arctophila*
8. Plants terrestrial; leaf blades usually curved and prow-like at the tips .... *Poa*
7. Lemmas awned.
9. Lemmas awned from bifid tips; sheaths closed .... *Schizachne*
9. Lemmas awned, the first from the tips, the upper one deeply bifid and awned from the back; sheaths open .... *Ventenata*
6. Callus of the florets not bearded.
10. Lemmas keeled on the back.
11. Spikelets strongly compressed, crowded in dense, 1-sided panicles .... *Dactylis*
11. Spikelets not strongly compressed (except some *Bromus*), not crowded in dense 1-sided panicles.
12. Spikelets large, mostly more than 15 mm long; lemmas awned, often from minutely bifid tips, or nearly awnless .... *Bromus*
12. Spikelets small, mostly less than 10 mm long; lemmas awnless .... *Poa*
10. Lemmas rounded on the back.
13. Spikelets of 2 types, borne mostly in pairs, one of these fertile .... *Cynosurus*
13. Spikelets all alike or at least not of 2 types and in part sterile.
14. Glumes papery; spikelets disarticulating above or below the glumes; terminal florets similar to the fertile florets, or reduced to egg-shaped, blunt rudiments .... *Melica*
14. Glumes not papery; spikelets disarticulating above the glumes; reduced florets similar to the other florets.
15. Nerves of the lemmas parallel, not converging at the summits, or only slightly so.
16. Inflorescence a simple 1-sided raceme; lemmas awned .... *Pleuropogon*
16. Inflorescence an open to congested panicle; lemmas awnless.
17. Nerves of the lemmas obscure, usually 5 .... *Puccinellia*
17. Nerves of the lemmas usually prominent, 5 to 7.
18. Leaf sheaths open, their margins free and overlapping .... *Torreyochloa*
18. Leaf sheaths (at least the upper ones) closed, or nearly so .... *Glyceria*
15. Nerves of the lemmas converging toward the summits.

19. Lemmas tapered to points, usually awned or sometimes awn-tipped (this appearance often exaggerated by involution of the lemmas); leaf sheaths open.
    20. Plants annual .... *Vulpia*
    20. Plants perennial .... *Festuca*
19. Lemmas broader, or if somewhat tapered, then awned from bifid tips; leaf sheaths closed, at least in the lower 1/2.
    21. Spikelets large, mostly more than 15 mm long; lemmas often awned from bifid tips, or nearly awnless .... *Bromus*
    21. Spikelets small, mostly less than 10 mm long; lemmas awnless .... *Poa*

GROUP IV

1. Lemmas awned from the tips or awnless.
    2. Lemmas prominently awned.
        3. Lemma awns arising between 2 lobes .... *Danthonia*
        3. Lemma awns arising nearly imperceptibly from narrow, long-pointed, unlobed tips .... *Vulpia*
    2. Lemmas awnless or very shortly awned from minutely bifid tips.
        4. Lemmas nearly as wide as long .... *Briza*
        4. Lemmas much longer than wide.
            5. Plants strongly rhizomatous perennials; spikelets in an open panicle .... *Scolochloa*
            5. Plants strongly tufted perennials; spikelets in a congested spikelike panicle .... *Koeleria*
1. Lemmas (at least the uppermost) awned from the back.
    6. Spikelets with 2 or more perfect florets, the reduced florets, when present, terminal in the spikelets.
        7. Spikelets small, the glumes 2-9 mm long.
            8. Lemma awns attached above the middle; lemmas (3.5) 4-9 mm long .... *Trisetum*
            8. Lemma awns attached below the middle; lemmas 1.5-4 (4.5) mm long.
                9. Plants delicate annuals; glumes nerveless; rachillas not prolonged beyond the second florets .... *Aira*
                9. Plants perennials (except *Deschampia danthonioides* which is annual); glumes 1- to 3-nerved; rachillas often prolonged beyond the second florets.
                    10. Leaf blades flat, 3-6 mm wide, in-rolled in bud; ligules rounded to squared-off; spikelets purplish .... *Vahlodea*
                    10. Leaf blades usually folded or in-rolled, 1-3 (4) mm wide, folded in bud; ligules sharp-pointed or long-pointed; spikelets greenish or tawny .... *Deschampsia*
        7. Spikelets large, the glumes 8-30 mm long.
            11. Plants large annuals, (25) 40-100 cm tall; glumes 20-25 mm long; panicle open, drooping, 10-38 cm long .... *Avena*
            11. Plants small perennials, 25-40 cm tall; glumes 12-15 mm long; panicle narrow, erect, 3-5 (7.5) cm long .... *Helictotrichon*
    6. Spikelets with 1 perfect floret and 1 male floret.
        12. Lower florets male and awned, the awns twisted, abruptly bent, exserted; upper florets perfect, awnless or with small, hair-like, nearly terminal awns .... *Arrhenatherum*
        12. Lower florets perfect, awnless; upper florets male, with hooked, curved or bent awns .... *Holcus*

GROUP V

1. Lemmas thickly membranous to stiff, hardened in fruit, terminally awned; calluses well-developed.

2. Awns 3-branched, junction of awns and lemmas not evident .... *Aristida*

2. Awns unbranched, junction of awns and lemmas evident.

3. Glumes narrowing in the upper third, sharp-pointed; florets usually less than 5 times as long as wide, never soft-hairy.

4. Blades of cauline leaves absent or less than 1 cm long; callus hairs soft and wavey .... *Oryzopsis*

4. Blades of cauline leaves well-developed, more than 1 cm long; callus hairs lacking .... *Piptatherum*

3. Glumes tapering from midlength or below, long-pointed to sharp-pointed; lemmas usually more than 5 times as long as wide (shorter and soft-hairy in *Achnatherum hymenoides*).

5. Lemma margins strongly overlapping, difficult to pry apart; paleas smooth, less than 1/3 the length of the lemmas .... *Nassella*

5. Lemma margins slightly overlapping, sometimes separate at maturity, easily pried apart; paleas usually hairy, more than 1/3 the length of the lemmas.

6. Awns 5-20 cm long; callus 2.5-5 mm long, sharply pointed; glumes 15-45 mm long .... *Hesperostipa*

6. Awns 0.3-6 cm long; callus 0.3-3 mm long, often blunt; glumes 5-15 mm long .... *Achnatherum*

1. Lemmas membranous, not evidently stiff (except in *Apera*), not hardened in fruit, awned or awnless.

7. Glumes, at least the upper, equalling or usually longer than the florets (except shorter in *Arctagrostis*).

8. Spikelets disarticulating above the glumes.

9. Glumes abruptly short-awned from rounded tips, fringed with fine hairs on the prominent keels .... *Phleum*

9. Glumes not abruptly awned, if awned at all, not fringed with fine hairs on the keels.

10. Lemmas 1-nerved, awnless .... *Sporobolus*

10. Lemmas 3- to 5-nerved, awned or sometimes awnless.

11. Lemmas awned from entire or minutely cleft tips, the body of the lemmas 3-nerved .... *Muhlenbergia*

11. Lemmas with awns on the backs, or if awnless, 5-nerved.

12. Lemma awns evident, more than 5.5 mm long, arising from just below the tips of the lemmas; lemmas firm to more or less stiff .... *Apera*

12. Lemma awns less than 4.5 mm long or absent, or if longer, arising at or below the midlength of the lemmas (*Calamagrostis purpurascens*); lemmas membranous.

13. Callus of the florets evidently bearded .... *Calamagrostis*

13. Callus of the florets smooth to minutely bearded.

14. Glumes 3-nerved, shorter than florets; paleas usually well-developed .... *Arctagrostis*

14. Glumes 5- (sometimes 3-) nerved, longer than florets; paleas often absent or at least poorly developed .... *Agrostis*

8. Spikelets disarticulating below the glumes, the spikelets falling entire.

15. Glumes awned.

16. Lemmas 0.7-1.5 mm long; anthers small, 0.4-0.7 mm long .... *Polypogon*

16. Lemmas (1.2) 1.7-2.5 mm long; anthers 1.1-2.3 mm long .... *Phleum*

15. Glumes awnless.

17. Lemmas with short awns from notched tips; panicle usually somewhat open, drooping .... *Cinna*

17. Lemmas awned from the middle or below; panicle dense, cylindrical, spikelike .... *Alopecurus*

7. Glumes shorter than the florets.

18. Spikelets disarticulating below the glumes.

19. Glumes dissimilar, the lower linear, the upper broadly lanceolate to egg-shaped; ligules 1.5-3.5 mm long .... *Sphenopholis*

19. Glumes nearly equal, semicircular; ligules 6-11 mm long .... *Beckmannia*

18. Spikelets disarticulating above the glumes.

20. Callus of the florets bearded; spikelets more than 6.5 mm long.

21. Panicle spikelike; rachillas prolonged; plants of coastal BC .... *Ammophila*

21. Panicle open; rachillas not prolonged; plants of SE BC .... *Calamovilfa*

20. Callus of the florets smooth to rough; spikelets 1-4.5 (5.5) mm long.

22. Lemmas 1-nerved; fruit not a true caryopsis as the ovary wall and seed coat are not fused (i.e., seeds loose) .... *Sporobolus*

22. Lemmas 3-nerved; fruit a true caryopsis.

23. Sheath margins free to the base; nerves of the lemmas converging towards the tips .... *Muhlenbergia*

23. Sheath margins united to above the middle or near the ligules; nerves of the lemmas parallel, not converging towards the tips .... *Phippsia*[4]

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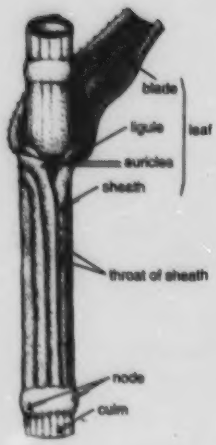
[4] *Phippsia algida* (Soland.) R. Br. is known from moist, alpine gravelly sites in extreme SW YT, and has yet to be collected in BC but should be expected.

VEGETATIVE FEATURES OF POACEAE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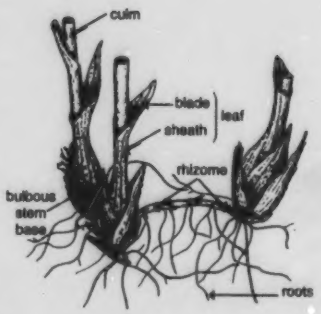
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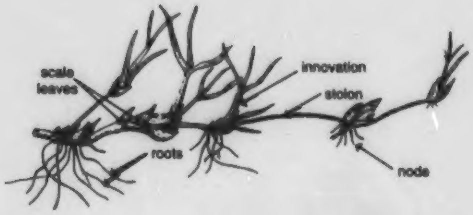
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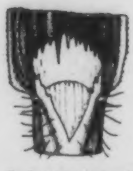
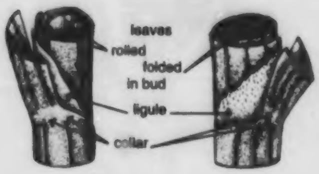


ligule erose-lacerate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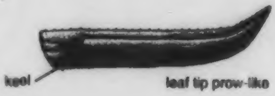
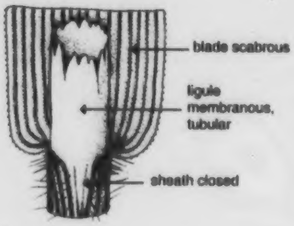
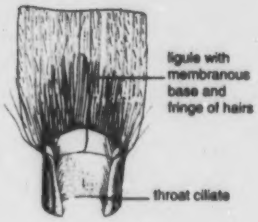
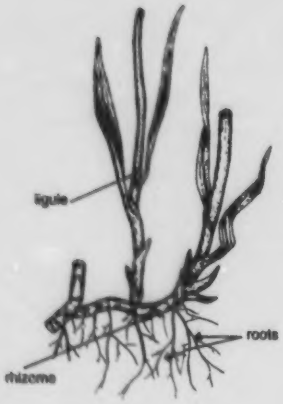
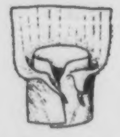
folded in bud
ligule
collar


keel
leaf tip prow-like

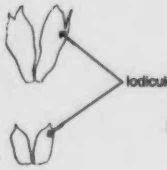

blade scabrous
ligule membranous, tubular
sheath closed

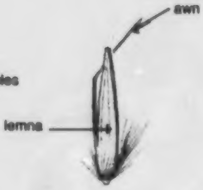

ligule with membranous base and fringe of hairs
throat ciliate

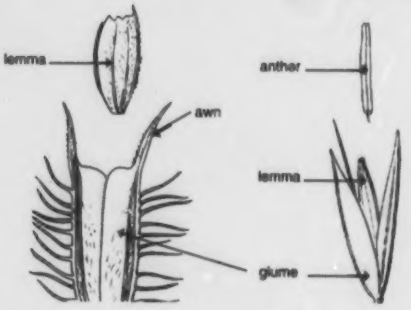

ligule
roots
rhizome

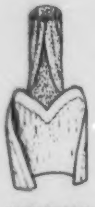


auricles prominent






lemma
anther
awn
lemma
glume



blade involute

ACHNATHERUM[5]

1. Basal segment of the awns with long, soft hairs, some 0.5-1 mm long .... *A. occidentale*
1. Basal segment of the awns rough or with hairs less than 0.5 mm long.
    2. Lemmas evenly hairy throughout, the hairs 2.5-6 mm long; awns deciduous .... *A. hymenoides*
    2. Lemmas smooth to short-hairy below, the hairs 0.2-0.5 mm long, smooth above; awns persistent.
        3. Panicle branches zig-zag, broadly spreading; mature spikelets drooping .... *A. richardsonii*
        3. Panicle branches straight, appressed to ascending; spikelets appressed to the branches.
            4. Florets rounded; paleas 1/3 to 1/2 as long as the lemmas; lemma tips with minute membranous lobes .... *A. nelsonii*
            4. Florets somewhat flattened; paleas 3/4 as long as the lemmas to subequal to them; lemma tips with thick lobes, 0.1 mm long ....*A. lemmonii*

Achnatherum hymenoides **(Roem. & J. A. Schult.) Barkw.** (*Oryzopsis hymenoides* [Roem. & J.A. Schult.] Ricker, *Stipa hymenoides* Roem. & J.A. Schult.)

Indian ricegrass

HABITAT/RANGE:

Dry sandy slopes and grasslands in the steppe and montane (rarely) zones; infrequent in SC and SE BC, rare in NW BC (Telegraph Creek); E to SW MB and S to AR, TX, NM, AZ, MX and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 25-70 cm tall.

Leaves: Sheaths open; blades in-rolled, 0.1-1 mm wide and usually wavy when dry; ligules on the lower leaves 1.5-7.5 mm long, tapering to sharp points, the upper ligules to 2 mm long.

Flowers: Inflorescence an open, spreading panicle, 9-20 cm long, the unequal branches and flower stalks spreading wide; spikelets single at the end of each flower stalk; glumes 5-9 mm long, rounded at the base and tapering above the middle to points, with short, stiff hairs throughout; lemmas 3-4 mm long, densely hairy, the hairs 2.5-6 mm long, awned, the stout awns 3-6 mm long, the first segments rough or short-hairy, deciduous at maturity; paleas almost as long as the lemmas; calluses 0.4-1 mm long, sharp.

Achnatherum lemmonii **(Vasey) Barkw. var. *lemmonii*** (*Stipa lemmonii* [Vasey] Scribn.)

Lemmon's needlegrass

HABITAT/RANGE:

Mesic to dry, open slopes in the lowland and montane zones; infrequent in SW BC, rare in SC BC; S to MT, AZ and CA.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems 15-90 cm tall.

Leaves: Sheaths open, smooth to hairy with short hairs; lower blades 0.5-1.5 mm wide, upper blades to 2.5 mm wide; lower ligules 0.5-1.2 mm long, blunt to pointed, the upper ligules to 2.5 mm long.

Flowers: Inflorescence a narrow panicle, 7-21 cm long, the branches straight, appressed to ascending, the spikelets appressed to the branches; florets somewhat flattened laterally rather than rounded; glumes 7-11.5 mm long, smooth; lemmas 3-4.5 mm long, leathery, smooth above, short-hairy below, the hairs 0.5 mm long, the tips with thick, 0.1 mm long lobes at the ends, awned, the awns 16-30 mm long, the first segments rough or short-hairy, persistent; paleas 3/4 as long as the lemmas or nearly equal to them, the calluses 0.4-1.2 mm long, blunt.

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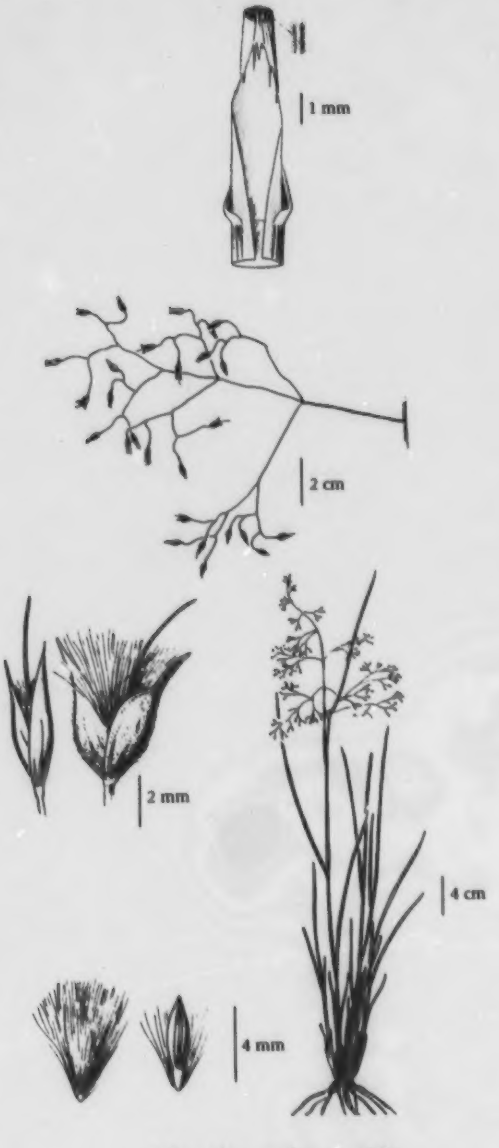
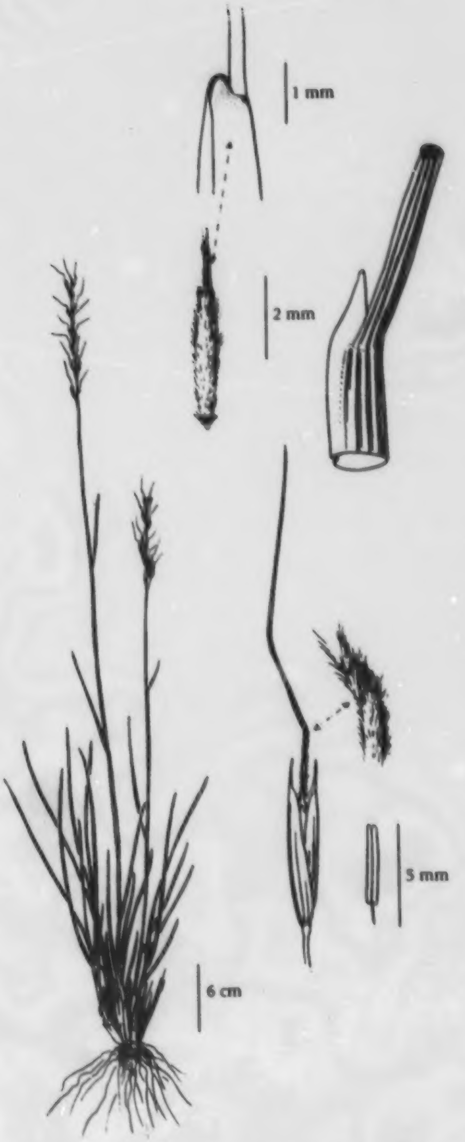
[5] Contributed by H. Stewart and M. Barkworth.


1 mm
2 cm
2 mm
4 cm
4 mm

Achnatherum hymenoides


1 mm
2 mm
5 mm
6 cm

Achnatherum lemmonii var. *lemmonii*

***Achnatherum nelsonii* (Scribn.) Barkw. ssp. *dorei* (Barkw. & Maze) Barkw.** (*Stipa minor* Vasey, *S. nelsonii* Scribn. var. *dorei* [Barkw. & Maze] Dorn, *S. columbiana auct. non* Macoun, *S. occidentalis* Thurb. *ex* Wats. var. *nelsonii* [Scribn.] C.L. Hitchc.)

Columbia needlegrass

HABITAT/RANGE:

Mesic to dry rocky slopes and open forests from the lowland to subalpine zones; frequent in NE, WC, SC and SE BC; N to YT, E to SK and S to TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems 40-175 cm tall.

Leaves: Sheaths open, smooth to densely hairy, the margins sometimes with a fringe of hairs; blades (0.5) 1.2-5 mm wide; lower ligules 0.2-0.7 mm long, thin and flexible, blunt to rounded, usually without hairs along the margins; upper ligules up to 1.5 mm long, pointed.

Flowers: Inflorescence a narrow panicle, 9-36 cm long, the branches straight, appressed to ascending, the spikelets appressed to the branches; florets not flattened; glumes 6-12.5 mm long, smooth; lemmas 6-7.5 mm long, smooth above, short-hairy below, the hairs 0.2-0.5 mm long, the tips minutely lobed, membranous, 0.1-0.4 mm long, awned, the awns 19-31 mm long, the first segments rough or short-hairy, persistent; paleas 2-4 mm long, 1/3-1/2 as long as the lemmas, the calluses 0.2-1 mm long, blunt, the smooth areas barely extending beyond the base of the callus hairs.

***Achnatherum occidentale* (Thurber) Barkw. ssp. *pubescens* (Vasey) Barkw.** (*Stipa occidentalis* Thurb. *ex* S. Wats. var. *pubescens* Maze, Taylor & MacBryde, *S. elmeri* Piper & Brodie *ex* Scribn.)

stiff needlegrass

HABITAT/RANGE:

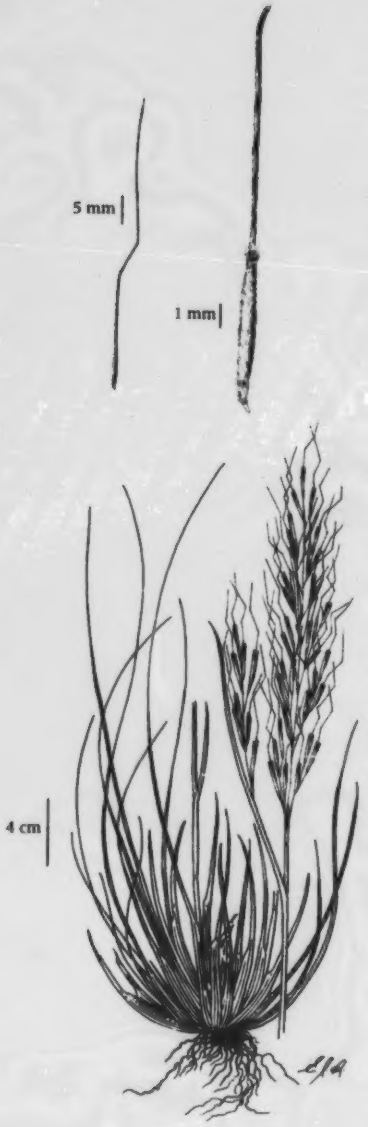
Dry rocky slopes and open forests in the steppe and montane zones; frequent in NE BC, infrequent in SC and SE BC; S to WY, AZ, and CA.

DESCRIPTION:

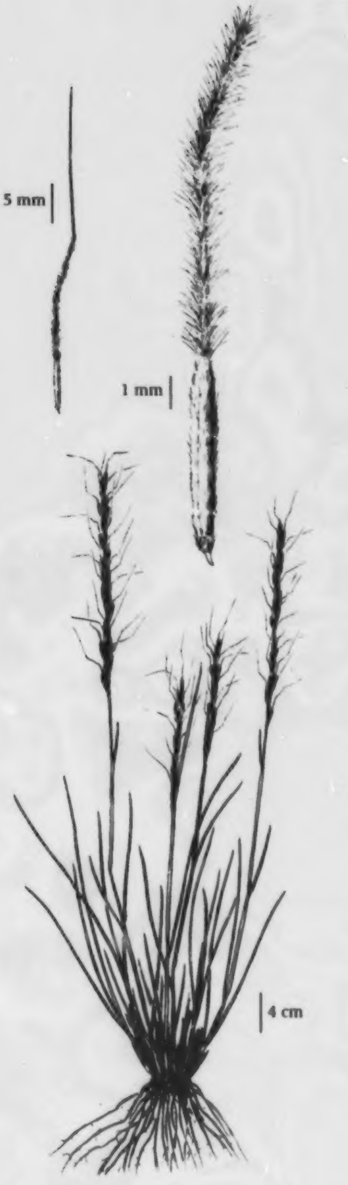
General: Perennial tufted grass from fibrous roots; stems 30-120 cm tall, the nodes and internodes smooth to densely hairy.

Leaves: Lower sheaths smooth to hairy, often fringed at the throats, brown to grey when old; blades to 3 mm wide, usually straight and upright; lower ligules 0.2-1.5 mm long, often fringed along the margins; upper ligules 0.3-1 (1.5) mm long.

Flowers: Inflorescence a narrow panicle 8-30 cm long; glumes almost equal, 9-15 mm long, green, smooth; lemmas 6-7.5 mm long, hairy, the hairs 0.2-0.5 mm long, hairs at the tips similar in length to those at the base of the awns, the awns 15-40 mm long, twice bent, the first 2 segments with short hairs to long, soft, straight hairs, some of the hairs 0.5-1 mm long; paleas 2/5-3/5 as long as the lemmas, the calluses 0.8-1.2 mm long, sharp.



Achnatherum nelsonii ssp. *dorei*



Achnatherum occidentale ssp. *pubescens*

***Achnatherum richardsonii* (Link) Barkw.** (*Stipa richardsonii* Link)

spreading needlegrass

HABITAT/RANGE:

Moist to dry slopes and open forests in the steppe and montane zones; locally frequent in SC, SE and WC BC; N to YT, E to MB and S to SD, CO, ID and WA.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems 30-100 cm tall.

Leaves: Sheaths smooth to slightly hairy; blades 0.8-3 mm wide; lower ligules 0.1-0.5 mm long, higher on the sides than on the back.

Flowers: Inflorescence a panicle, 8-30 cm long, the branches zig-zag, broadly spreading, the mature spikelets drooping at the ends of the branches; glumes green, unequal, the lower ones 9-15 mm long, the upper 2-3 mm shorter than the lower; lemmas 4.5-5.5 mm long, smooth above, sparsely hairy below, the hairs 0.2-0.5 mm long, awned, the awns 15-25 mm long, twice bent, the first segments rough or short-hairy, the terminal segments zig-zag, persistent; paleas 1/2-3/5 as long as the lemmas, the calluses 0.4-0.7 mm long, blunt.

AGROPYRON

1. Spikelets spreading at an angle of 30° or more from the rachis; spikelets less than 1 mm apart .... *A. cristatum*
1. Spikelets forming an angle of less than 30° with the rachis; spikelets more than 1 mm apart.
   2. Lemma awns abruptly pointed or with awn no more than 1 mm long .... *A. fragile*
   2. Lemma awns 1-3 mm long .... *A. desertorum*

***Agropyron cristatum* (L.) Gaertn. ssp. *pectinatum* (Bieb.) Tzvelev** (*A. pectiniforme* Roem. & J.A. Schult.)

crested wheatgrass

HABITAT/RANGE:

Dry to mesic roadsides, fields and waste places in the lowland, steppe and montane zones; frequent in SC and SE BC, rare in SW BC; introduced from Eurasia.

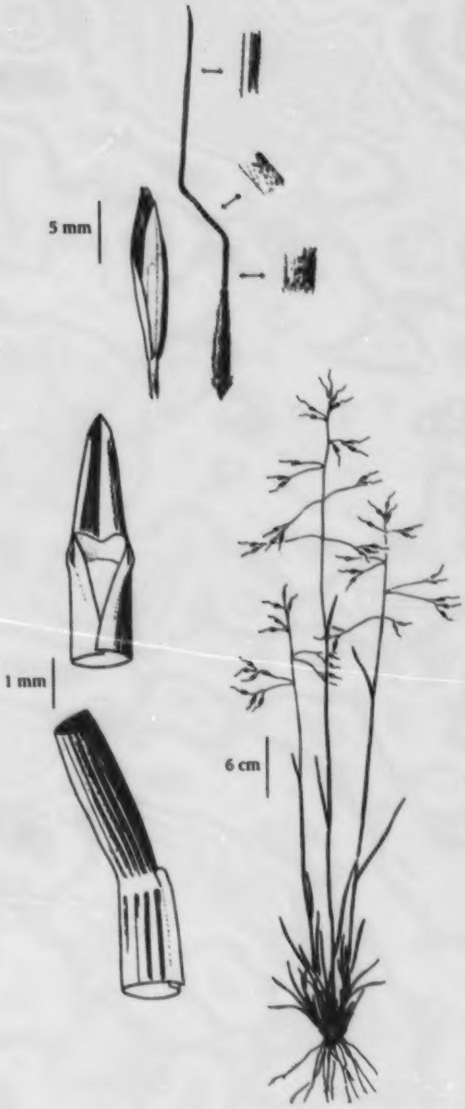
DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems (30) 50-100 cm tall, usually soft-hairy below the spike.

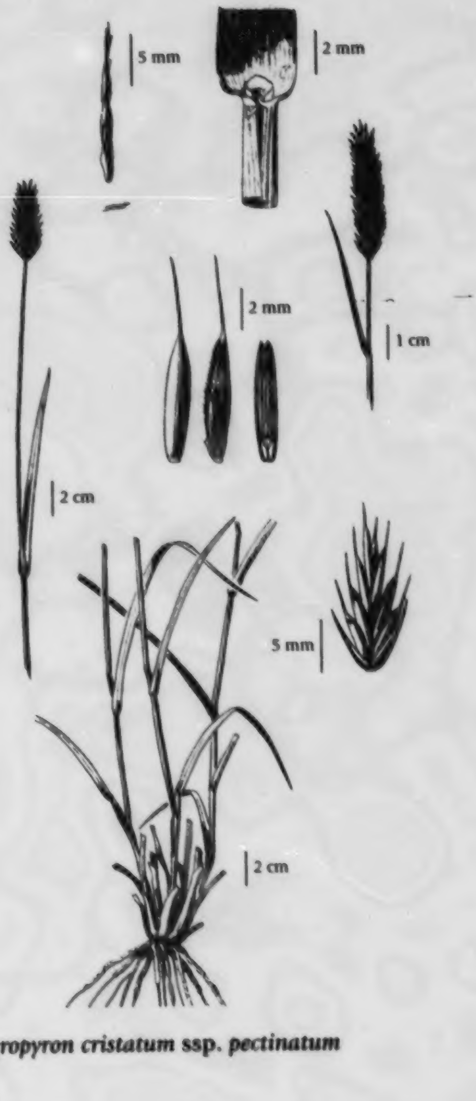
Leaves: Sheaths open, the lower ones smooth to somewhat long-hairy or soft-hairy; blades soft-hairy on the upper surfaces, flat, 1.5-5 (10) mm wide; ear-shaped lobes at the leaf-bases slender, about 1 mm long; ligules fringed with fine hairs, scarcely 1 mm long.

Flowers: Inflorescence a dense, oblong, flattened spike, 1.5-5 (13) cm long, the rachis rough short-hairy; spikelets closely overlapping, less than 1 mm apart, spreading at an angle of 30° or more to the rachis, mostly 5- to 7- (8-) flowered, (5) 7-12 (15) mm long, separated by short rachis internodes (0.7) 1-1.9 (2.3) mm long; glumes short-awned, the awns gradually tapering, 2-4 mm long; lemmas short-awned, the awns sometimes slightly bent, 2-4 mm long.

Notes: The three *Agropyron* species occurring in BC hybridize readily when growing together, forming morphologically intermediate plants. In addition, some cultivars are also intermediate, being derived from hybrids. Consequently, identification of *Agropyron* species in North America is often extremely difficult. In many instances, it may be best to refer to plants of this genus as *A. cristatum sens. lat.*, the last phrase indicating no distinction is being made between the three species.



Achnatherum richardsonii


5 mm
2 mm
2 mm
1 cm
2 cm
5 mm
2 cm

Agropyron cristatum ssp. *pectinatum*

Agropyron desertorum **(Fisch. *ex* Link) J.A. Schult.** (*A. cristatum* [L.] Gaertn. var. *desertorum* [Fisch. *ex* Link] Dorn)
desert wheatgrass

HABITAT/RANGE:

Dry roadsides, fields and waste places in the steppe and montane zones; rare in BC east of the Coast-Cascade Mountains and south of 56° N; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 25-50 cm tall.

Leaves: Sheaths open, generally smooth, sometimes soft-hairy or rough short-hairy; blades rough short-hairy on the upper surfaces, flat, 2-3 mm wide; ear-shaped lobes at the leaf-bases slender, about 1 mm long; ligules jagged and more or less fringed with fine hairs, scarcely 1 mm long.

Flowers: Inflorescence a dense, narrowly cylindrical spike, 2.5-7.5 cm long, the rachis hairy; spikelets closely graduated but greater than 1 mm between them, appressed to ascending, forming an angle of less than 30° with the rachis, mostly 5- to 7- (8-) flowered, (5) 7-12 (15) mm long, separated by rachis internodes (1.5) 2.5-3.5 (5) mm long; glumes generally 3-nerved, 3-4 mm long, with translucent margins about 0.4 mm wide, shorter than the lower florets, abruptly short-awned, the awns 1-3 mm long; lemmas generally 5-nerved, 5-6 mm long, short-awned; the awns sometimes slightly bent, 1-3 mm long.

Agropyron fragile **(Roth) P. Candargy** (*A. fragile* var. *sibiricum* [Willd.] Tzvelev, *A. sibiricum* [Willd.] Beauv., *A. cristatum* (L.) Gaertn. var. *fragile* [Roth] Dorn *pro parte*)
Siberian wheatgrass

HABITAT/RANGE:

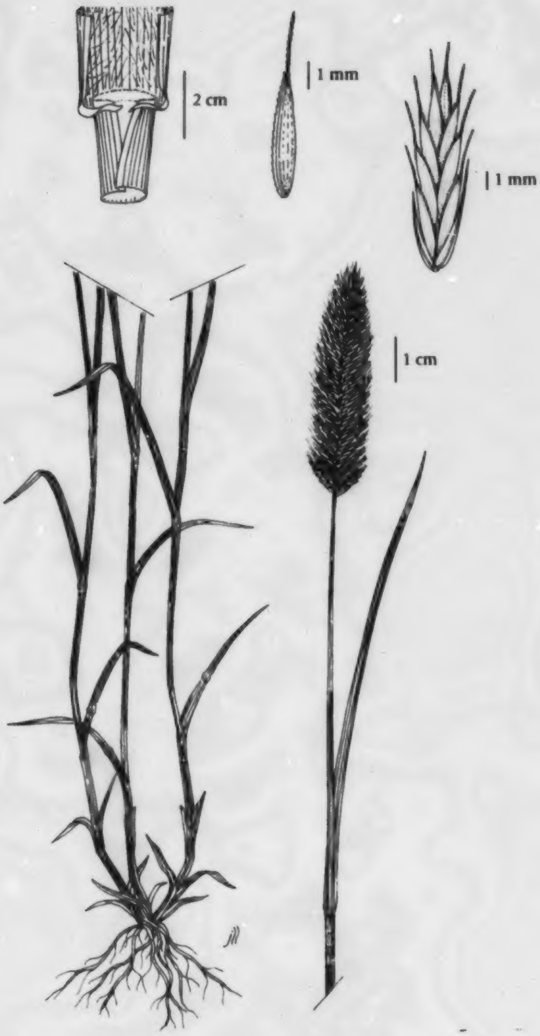
Dry roadsides, fields and waste places in the steppe and montane zones; infrequent in SC and SE BC; introduced from Eurasia.

DESCRIPTION:

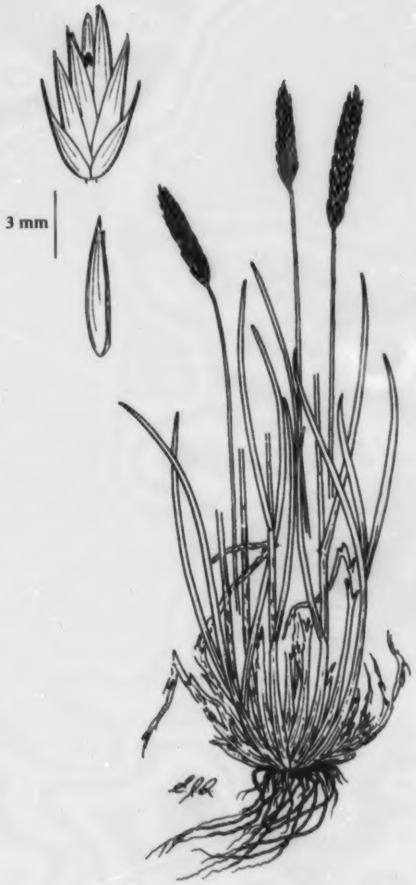
General: Perennial, tufted grass from fibrous roots; stems 30-80 cm tall.

Leaves: Sheaths open, the lower ones smooth to somewhat long-hairy or soft-hairy; blades soft-hairy on the upper surfaces, flat, 2-5 (10) mm wide; ear-shaped lobes at the leaf-bases slender, about 1 mm long; ligules jagged and more or less fringed with fine hairs, scarcely 1 mm long.

Flowers: Inflorescence a dense, more or less cylindrical spike, 6-10 cm long, the rachis smooth or hairy, spikelets closely graduated but greater than 1 mm between them, appressed, forming an angle of less than 30° with the rachis, mostly 5- to 7- (8-) flowered, (5) 7-12 (15) mm long, separated by rachis internodes (1.5) 2.5-3.5 (5) mm long; glumes 5-7 mm long, short-awned; lemmas 6-8.5 mm long, sharp-pointed or short-awned, the awns less than 1 mm long.


2 cm
1 mm
1 mm
1 cm

Agropyron desertorum



Agropyron fragile

AGROSTIS[6]

1. Stolons or rhizomes over 2 cm long.
    2. Stolons present; rhizomes absent .... *A. stolonifera*
    2. Stolons absent; rhizomes present.
        3. Paleas up to 0.2 mm long or absent .... *A. pallens*
        3. Paleas more than 0.6 mm long (at least 1/2 as long as the lemmas).
            4. Ligules 2-6 mm long, longer than wide; rhizomes abundant, often more than 10 cm long; inflorescence branches densely covered in spikelets to the base (except in shade plants) .... *A. gigantea*
            4. Ligules up to 2.5 mm long, wider than long; rhizomes sparse, usually less than 5 cm long; inflorescence branches with well-spaced spikelets, none or only a few of these near the base .... *A. capillaris*
1. Rhizomes or stolons absent, or if present less than 2 cm long (less than 5 cm long in *A. variabilis*).
    5. Mature inflorescence more or less open with the branches spreading and visible.
        6. Paleas present, at least 1/2 as long as the lemmas.
            7. Rachillas present behind the paleas as minute bristles, at least in some spikelets; usually in undisturbed native habitats.
                8. Anthers 0.8-1.5 mm long; plants of the lowland and montane zones .... *A. aequivalvis*
                8. Anthers 0.6-0.8 mm long; plants of the subalpine and alpine zones .... *A. humilis*
            7. Rachillas absent; usually in disturbed habitats.
                9. Ligules 2-6 mm long, longer than wide; rhizomes abundant, more than 5 cm long; inflorescence branches densely covered in spikelets to the base (except in shade plants) .... *A. gigantea*
                9. Ligules up to 2.5 mm long, wider than long; rhizomes sparse, usually less than 5 cm long; inflorescence branches with well-spaced spikelets, none or only a few of these near the base .... *A. capillaris*
        6. Paleas absent, or if present then less than 1/4 as long as the lemmas.
            10. Lemmas with awns arising from the back.
                11. Mature inflorescence about as wide as long, the branches hairlike, diffuse and lax .... *A. scabra*
                11. Mature inflorescence at least twice as long as wide, the branches rather stiff, more or less ascending .... *A. mertensii*
            10. Lemmas without awns.
                12. Mature inflorescence about as wide as long, usually over 10 cm long, often large, upright, the branches hairlike, diffuse, without spikelets near the base of the branches .... *A. scabra*

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[6] Contributed by M.J. Harvey.

12. Mature inflorescence at least twice as long as wide, if over 10 cm long, then either narrow, lax and drooping to one side or with spikelets crowded to the base of the branches.

13. Anthers 1-1.7 mm long .... *A. pallens*

13. Anthers usually less than 1 mm long.

14. Plants 12-35 cm tall; inflorescence usually less than 10 cm long; plants of the subalpine and alpine zones, occasionally in disturbed sites in the montane zone .... *A. idahoensis*

14. Plants usually over 35 cm tall; inflorescence usually over 10 cm long; plants of the lowland zone .... *A. oregonensis*

5. Mature inflorescence more or less constricted with the branches mainly appressed to the central axis.

15. Paleas present, at least 1/2 as long as the lemmas.

16. Anthers more than 1 mm long; plants usually vigorously spreading, in disturbed sites from the lowland to montane zones .... *A. stolonifera*

16. Anthers less than 0.8 mm long; plants usually tufted, in native habitats in the subalpine and alpine zones .... *A. humilis*

15. Paleas absent or if present then only as minute membranes.

17. Lemmas awnless.

18. Leaf blades less than 2 mm wide; inflorescence 2-8 cm long with few or no spikelets near the branch base; plants of the subalpine and alpine zones .... *A. variabilis*

18. Leaf blades 2-8 mm wide; inflorescence 4.5-18 cm long with the branches densely covered in spikelets to the base; plants of the lowland and montane zones .... *A. exarata*

17. Lemmas with awns arising from the back.

19. Spikelets usually 3-4 mm long; all shoots of the plants flowering; plants of dry sites in the lowland zone of S Vancouver Island and the Gulf Islands .... *A. microphylla*

19. Spikelets usually 1.8-3 mm long; some shoots of the plants non-flowering; plants of various sites and zones but not as above.

20. Inflorescence dense, the branches barely visible, covered with spikelets to the base .... *A. exarata*

20. Inflorescence loose, the branches visible with fewer spikelets borne mostly above the midpoint .... *A. mertensii*

***Agrostis aequivalvis* (Trin.) Trin.** (*Podagrostis aequivalvis* [Trin.] Scribn. and Merr.)

Alaska bentgrass

HABITAT/RANGE:

Moist streamsides, bogs, open bog forests and seepage areas in the lowland and lower subalpine zones; common in coastal BC; N to AK and S to OR.

DESCRIPTION:

General: Perennial, loosely tufted grass from rhizomes, the tufts scattered, the rhizomes less than 2 cm long; stems 25-70 cm tall.

Leaves: Sheaths smooth; blades 4-18 cm long, 1-2.5 mm wide, flat; ligules 0.5-2 mm long, slightly rough on the outside.

Flowers: Inflorescence lanceolate, open, loose, often drooping, 5-15 cm long, the lower branches more or less spreading, 3-6 cm long; spikelets sparse; glumes 2.7-4.3 mm long; lemmas 2.5-3.5 mm long, awnless, the callus hairs absent or sparse to 0.1 mm long; rachillas present behind the paleas as minute bristles in some spikelets, 0.5-1.9 mm long with terminal tufts of hairs less than 1/4 of the length; paleas present, 2-3 mm long; anthers 0.8-1.5 mm long.

***Agrostis capillaris* L.** (*A. tenuis* Sibth. *non* Vasey)

colonial bentgrass

HABITAT/RANGE:

Mesic to dry lawns, fields, roadsides and meadows in the lowland zone; common on S Vancouver Island and the adjacent mainland; introduced from Europe.

DESCRIPTION:

General: Perennial, densely tufted or matted grass, from rhizomes up to 5 cm long; stems 10-75 cm tall.

Leaves: Sheaths smooth; blades 3-10 cm long, 1-5 mm wide, flat; ligules wider than long, 0.5-2.5 mm long.

Flowers: Inflorescence broadly egg-shaped, open, 3-20 cm long, with a lack of spikelets adjacent to the main axis, the spikelets well-spaced on the branches, none or only a few of these near the base, the lower branches 1.5-4.5 cm long, broadly spreading; glumes 1.7-3 mm long; lemmas 1.3-2.5 mm long, the callus hairs absent or sparse to 0.1 mm long; rachillas absent; paleas 0.6-1.2 mm long, at least 1/2 as long as the lemmas; anthers 0.8-1.3 mm long.

***Agrostis exarata* Trin.** (*A. exarata* var. *minor* Hook., *A. exarata* var. *monolepis* [Torr.] A.S. Hitchc.)

spike bentgrass

HABITAT/RANGE:

Mesic to wet fields, tidal marshes, beaches, meadows, river bars, roadsides and disturbed sites in the lowland, steppe and montane zones; common throughout BC; amphiberingian, N to AK, YT and NT, E to S SK, and S to TX, NM, AZ and CA; E Asia, S America.

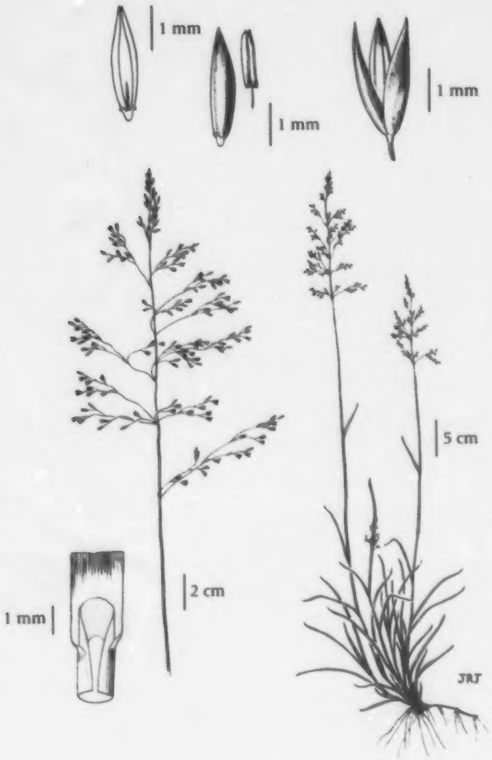
DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, some of the shoots non-flowering; stems 20-100 cm tall.

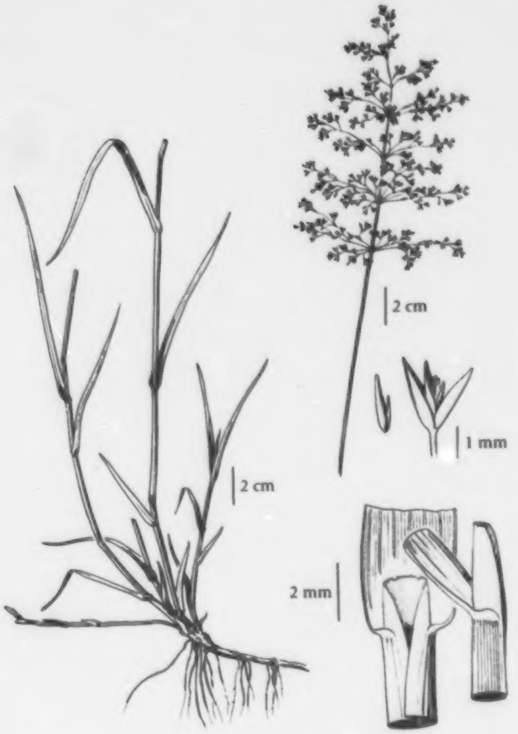
Leaves: Sheaths smooth to rough-hairy; blades 4-15 cm long, 2-8 mm wide, flat; ligules 2.5-4 mm long, rough-hairy outside.

Flowers: Inflorescence spikelike, dense, narrowly egg-shaped or lanceolate, occasionally interrupted near the base, 4.5-18 cm long, the branches ascending or appressed, barely visible, densely covered with spikelets to the base; spikelets numerous, crowded; glumes 1.5-3.5 mm long, pointed or narrowly tapering to fine points, the surfaces smooth or rough-hairy, especially on the keels; lemmas 1.2-2.2 mm long, awnless or some awned from above the middle on the back, the awns to 3.5 mm long, straight or bent; calluses sparsely to abundantly hairy, the hairs to 0.3 mm long; rachillas not prolonged; paleas variable, absent or if present, only as a minute membrane to 0.5 mm long; anthers 0.3-0.6 mm long.

Notes: *A. exarata* exhibits marked variation. Awned and awnless spikelets may occur on separate plants or in the same inflorescence. Plants also vary greatly in total height and size and colour of the inflorescence. For these reasons, several varieties have been proposed.


1 mm
1 mm
1 mm
5 cm
2 cm
1 mm
JRJ

Agrostis aequivalvis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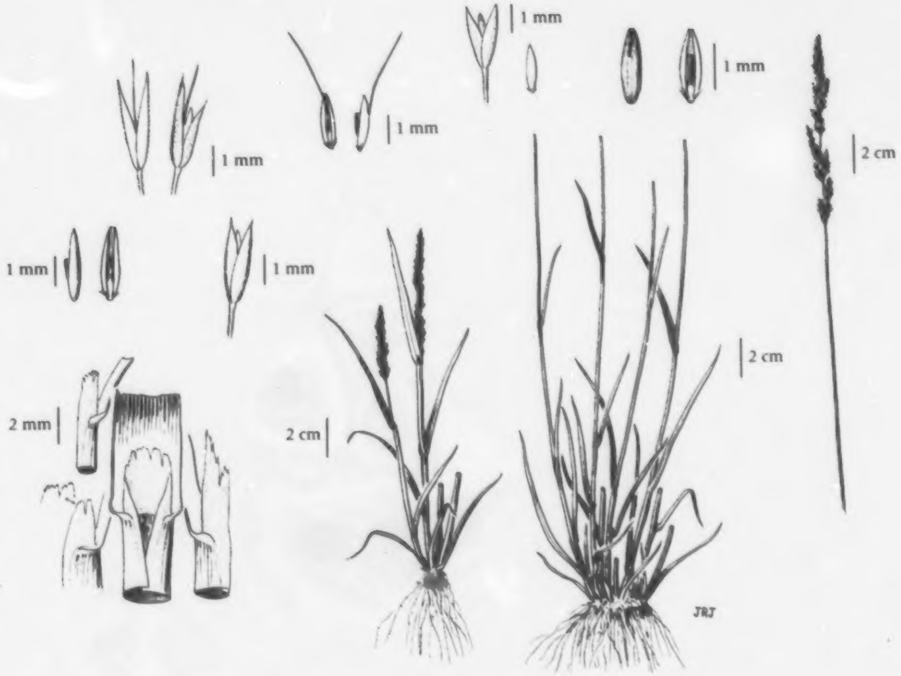
Agrostis capillaris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Agrostis exarata

Agrostis gigantea **Roth** (*A. alba auct. non* L., *A. stolonifera* var. *major* [Gaud.] Farw.)
redtop

HABITAT/RANGE:

Dry to mesic roadsides, fields and waste places in the lowland and montane zones; common throughout BC; introduced from Europe.

DESCRIPTION:

General: Perennial tufted grass from tough, underground, scaly rhizomes to 25 cm long; stems 20-120 cm tall.

Leaves: Sheaths smooth; blades 4-10 cm long, 3-8 mm wide, usually flat; ligules longer than wide, 2-6 mm long.

Flowers: Inflorescence open, broadly egg-shaped, 8-25 cm long, the branches spreading, the lower branches 4-7 cm long, but mixed with many short branches resulting in a crowding of the spikelets to the branch base (except in shade plants), the branches spreading broadly at flowering time and remaining so; glumes 1.7-3.2 mm long; lemmas 1.5-2.2 mm long, awnless or rarely with short, straight awns from near the tips; callus hairs sparse, up to 0.5 mm long; rachillas absent; paleas 0.7-1.4 mm long, as least 1/2 as long as the lemmas; anthers 1-1.4 mm long.

Notes: This species was formerly combined with *A. stolonifera* under the illegitimate name *A. alba*. It is distinguished from *A. stolonifera* by its underground rhizomes, its open inflorescence and tolerance of much drier habitats.

Agrostis humilis **Vasey** (*A. thurberiana* A.S. Hitchc., *Podagrostis humilis* [Vasey] Bjorkm.)
alpine bentgrass

HABITAT/RANGE:

Mesic to wet meadows, fens, streambanks, rocky slopes and moraines in the subalpine and alpine zones; frequent throughout BC; N to AK, E to AB and S to NM, UT, NV and CA.

DESCRIPTION:

General: Perennial tufted or matted grass from fibrous roots; stems 5-30 cm tall.

Leaves: Sheaths smooth; blades 2-15 cm long, 1-3 mm wide, flat or in-rolled; ligules 1-3 mm long, slightly rough short-hairy on the outside.

Flowers: Inflorescence open or more or less constricted in age, ellipitical to narrowly egg-shaped, 1.5-10 cm long, the branches spreading or appressed, the lower branches 0.5-7 cm long; spikelets numerous; glumes 1.6-2.3 mm long; lemmas 1.5-2.3 mm long, awnless; the callus hairs absent or sparse to 0.5 mm long; rachillas present behind the paleas as minute bristles 0.1-0.6 mm long or occasionally absent and variable even within the inflorescence, hairless or with small tufts of hairs at the tips; paleas present, at least 1/2 as long as the lemmas; anthers 0.6-0.8 mm long.

Notes: The taller plants with the more open inflorescence have usually been separated out as *A. thurberiana* A.S. Hitchc. but are here included in *A. humilis* because of the existence of intermediates. *A. variabilis*, another dwarf alpine species, closely resembles *A. humilis* in the field and should be confirmed by its lack of paleas.

Agrostis idahoensis **Nash**
Idaho bentgrass

HABITAT/RANGE:

Edges of bog pools, wet meadows, fens and seepage areas in the subalpine and alpine zones, occasionally in ditches and wet sites in the montane zone; infrequent on Vancouver Island, the adjacent mainland and north in the Coast Mountains; N to AK, E to AB and S to NM, AZ and CA.

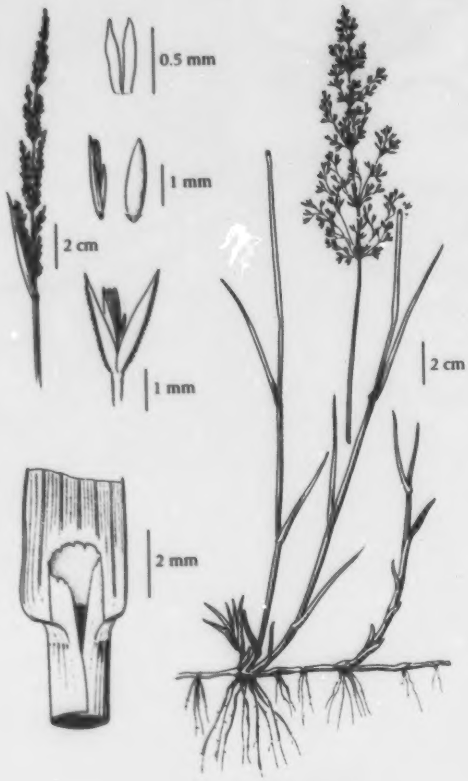
DESCRIPTION:

General: Perennial grass from fibrous roots, with scattered shoots; stems 12-35 cm tall.

Leaves: Sheaths smooth; blades 1-5 cm long, 0.5-2 mm wide, flat, becoming in-rolled; ligules 1-3 mm long, slightly rough on the outside.

Flowers: Inflorescence open, lanceolate to broadly egg-shaped, at least twice as long as wide, 3-10 (13) cm long, the branches spreading to ascending, the lower ones 1-4 cm long; spikelets broadly separated, sparse; glumes 1.5-2.5 mm long; lemmas 1.2-2 mm long, awnless, the callus hairs to 0.3 mm long; paleas absent or if present, as thin membranes less than 1/4 as long as the lemmas; anthers 0.3-0.5 mm long.

Notes: This species is often confused with the larger-panicled *A. scabra* and the awned *A. mertensii*.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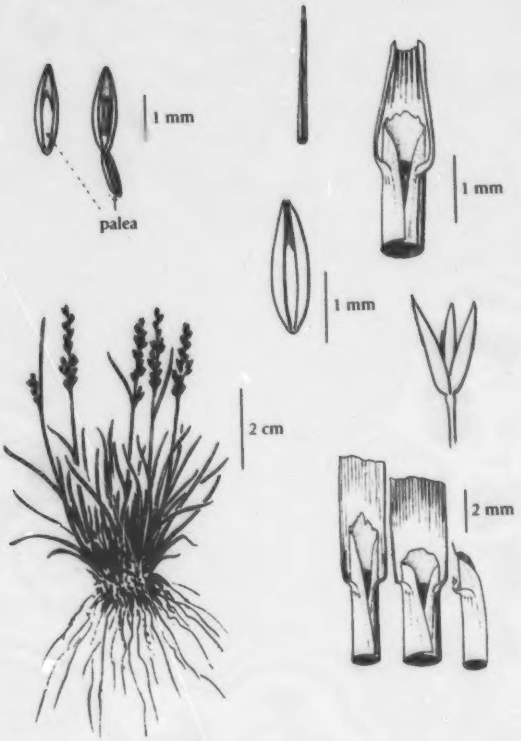
Agrostis gigantea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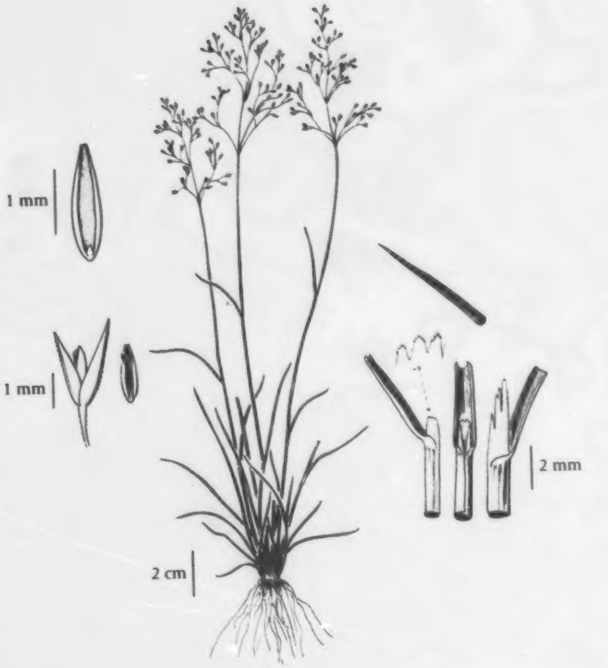
Agrostis humilis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Agrostis idahoensis

***Agrostis mertensii* Trin.** (*A. borealis* Hartm.)
northern bentgrass

HABITAT/RANGE:

Mesic to dry meadows, streambanks, cliffs and scree slopes in the lowland to alpine zones; infrequent throughout BC; circumboreal, N to AK, YT and NT, E to NF and S to SC, TN, CO, UT and WA; Greenland, N Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, some shoots non-flowering; stems 10-40 cm tall.

Leaves: Sheaths smooth; blades 2.5-13 cm long, 1-3 mm wide, flat; ligules 1.5-3 mm long.

Flowers: Inflorescence broadly egg-shaped to lanceolate, usually open, loose or more or less constricted, 3-10 cm long, at least twice as long as wide, the branches more or less stiff, ascending or appressed, the lower branches to 4 cm long, branching above the middle, the spikelets sparse, borne mostly above the midpoints; spikelets usually 1.8-3 mm long; glumes 2.5-3.8 mm long; lemmas 1.6-2.6 mm long, the awns attached just below the middle from the back, 3-4 mm long, bent, the callus hairs to 0.2 mm long; paleas absent; anthers 0.5-0.8 mm long.

***Agrostis microphylla* Steud.** (*A. inflata* Scribn.)
small-leaved bentgrass

HABITAT/RANGE:

Wet vernal meadows, open forests and edges of temporary pools in the lowland zone; locally frequent on SE Vancouver Island and the Gulf Islands; S to CA and NW MX.

DESCRIPTION:

General: Annual grass from fibrous roots, often in dense swards, drying and shrivelling by midsummer, all shoots flowering; stems 8-45 cm tall.

Leaves: Sheaths smooth or hairy; blades 3-15 cm long, 0.7-2.5 mm wide, flat, becoming in-rolled; ligules 1.5-4 mm long.

Flowers: Inflorescence very dense, cylindrical, more or less constricted, occasionally interrupted near the base, 2-12 cm long, the branches mainly appressed; spikelets numerous; glumes 2.5-5 mm long, the tips tapering gradually to long points; lemmas 1.5-2 mm long, rough short-hairy outside, the midribs extended at the tips into 2 teeth to 0.5 mm long, the awns 3.5-8 mm long from the middle on the back, bent, the callus hairs in dense tufts to 0.5 mm long; paleas absent or if present, as thin membranes to 0.2 mm long; anthers 0.4-0.6 mm long.

***Agrostis oregonensis* Vasey**
Oregon bentgrass

HABITAT/RANGE:

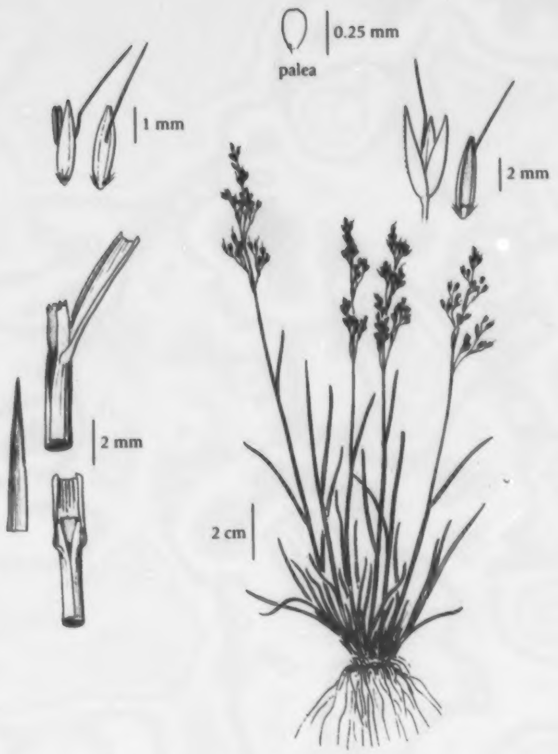
Moist to wet meadows, streamsides, bogs, fens and forest openings in the lowland zone; frequent in coastal BC; N to AK and S to WY, ID, NV and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, the tufts scattered; stems 12-75 cm tall.

Leaves: Sheaths smooth; blades 10-30 cm long, 2-4 mm wide, flat; ligules 2-4.5 mm long.

Flowers: Inflorescence egg-shaped, usually very loose and open, 8-35 cm long, at least twice as long as wide, the branches spreading, the lower branches 2-10 cm long, ascending, branching above the middle; spikelets sparse; glumes 2.2-3.6 mm long; lemmas 1.5-2.5 mm long, awnless, the callus hairs sparse, to 0.2 mm long; paleas absent or if present, as thin membranes less than 1/4 as long at the lemmas, to 0.2 mm long; anthers 0.5-1.2 mm long.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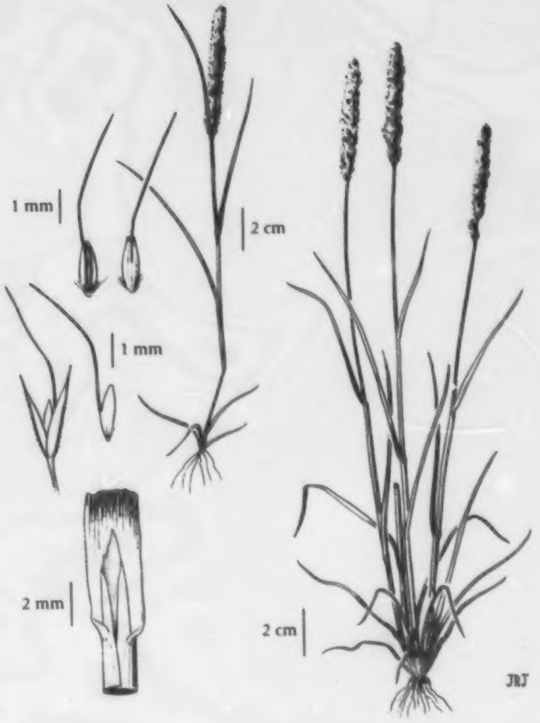
Agrostis mertensii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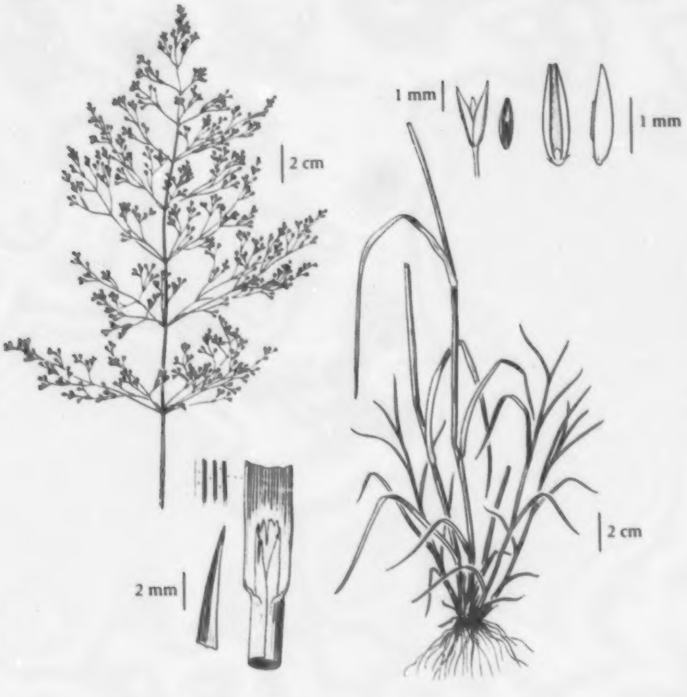
JRJ

Agrostis microphylla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Agrostis oregonensis

Agrostis pallens **Trin.** (*A. diegoensis* Vasey, *A. lepida* A.S. Hitchc.)
dune bentgrass; thingrass

HABITAT/RANGE:

Dry sand dunes, meadows, rock outcrops and rocky slopes in the lowland zone; rare on Vancouver Island and the Queen Charlotte Islands; S to MT, ID, NV and CA.

DESCRIPTION:

General: Perennial grass from rhizomes to about 10 cm long, rhizomes sometimes absent, not forming a turf and including many non-flowering shoots; stems 10-70 cm tall, scattered.

Leaves: Sheaths smooth; blades 1.5-5 cm long, 1-6 mm wide, flat, becoming in-rolled; ligules 1.5-6 mm long, rough-hairy outside.

Flowers: Inflorescence lanceolate to narrowly constricted, at least twice as long as wide, the branches ascending, 2-5 cm long; spikelets numerous; glumes 2-3 mm long; lemmas 1.5-2.5 mm long, awnless or rarely with straight awns to 0.5 mm long, from below the tips, calluses with sparse hairs to 0.25 mm long; paleas absent or if present, thin membranes to 0.2 mm long; anthers 1-1.7 mm long.

Notes: This is a rare species or group of species formerly thought to be confined to sand dunes but now known to occur inland in habitats subject to extreme summer drought.

Agrostis scabra **Willd.** (*A. hyemalis auct. non* [Walt.] BSP, *A. scabra* var. *geminata* [Trin.] Swallen)
hair bentgrass; winter bentgrass

HABITAT/RANGE:

Moist to dry meadows, rock outcrops, forest openings, clearings and roadsides in the lowland to subalpine zones; common throughout BC; amphiberingian, N to AK, YT and NT, E to NF, S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ, MX and CA; Greenland, NE Asia.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 20-75 cm tall.

Leaves: Sheaths smooth, blades mostly basal, 4-14 cm long, 1-3 mm wide, flat, finely rough short-hairy; ligules 2-5 mm long.

Flowers: Inflorescence broadly egg-shaped, open, large, upright, 10-30 cm long, about as wide as long, very diffuse with hairlike, lax branches 8-25 cm long, frequently detaching at maturity, the lower branches 4-11 cm long, broadly spreading at maturity, branched 1 or 2 times above the middle, the spikelets few, broadly separated at the tips of the branches, not near the base; glumes 1.5-3 mm long, rough short-hairy on the keels; lemmas 1.5-2 mm long, awnless or sometimes awned from below the middle on the back, the awns to 2 mm long, more or less straight, the callus hairs minute; paleas absent or if present, minute, less than 1/4 as long as the lemmas; anthers 0.4-0.7 mm long.

Notes: *Agrostis perennans* (Walt.) Tuckerm., hitherto regarded as an eastern species, has recently been found in WA and can be expected in BC. It differs from *A. scabra* in its slightly more condensed but still hairlike inflorescence and few or no basal leaves at flowering time but several well-developed stem leaves. It grows on moist to wet cliffs and streamsides. See also comments under *A. idahoensis*.

Agrostis stolonifera **L.** (*A. alba auct. non* L., *A. palustris* Huds.)
creeping bentgrass

HABITAT/RANGE:

Mesic to wet lawns, fields, ditches, pond margins, lakeshores and salt marshes in the lowland to montane zones; common throughout BC; introduced from Europe.

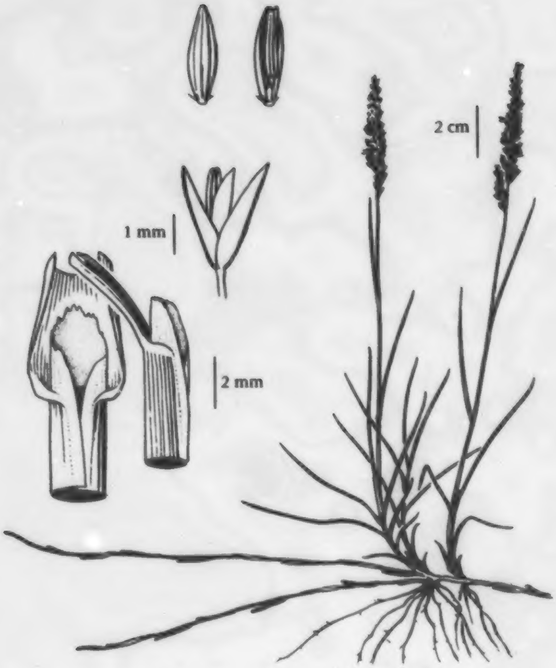
DESCRIPTION:

General: Perennial, creeping grass from rhizomes and leafy stolons rooting at the nodes, vigorously spreading, the stolons 5-150 cm long; stems 8-100 cm tall.

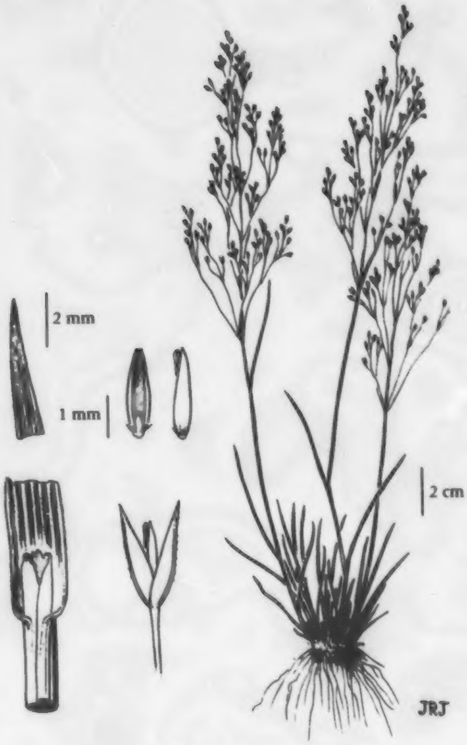
Leaves: Sheaths smooth; blades 2-10 cm long, 2-8 mm wide, flat; ligules 2-5 mm long.

Flowers: Inflorescence narrowly egg-shaped, more or less constricted, dense, the lower branches 2-6 cm long, appressed to the axis except briefly during flowering; spikelets densely clustered; glumes 1.6-3 mm long; lemmas 1.4-2 mm long, awnless except rarely with short, straight awns from near the tips, the callus hairs sparse, to 0.5 mm long; paleas 0.7-1.4 mm long, at least 1/2 as long as the lemmas; anthers 0.9-1.4 mm long.

Notes: See comments under *A. gigantea*.



Agrostis pallens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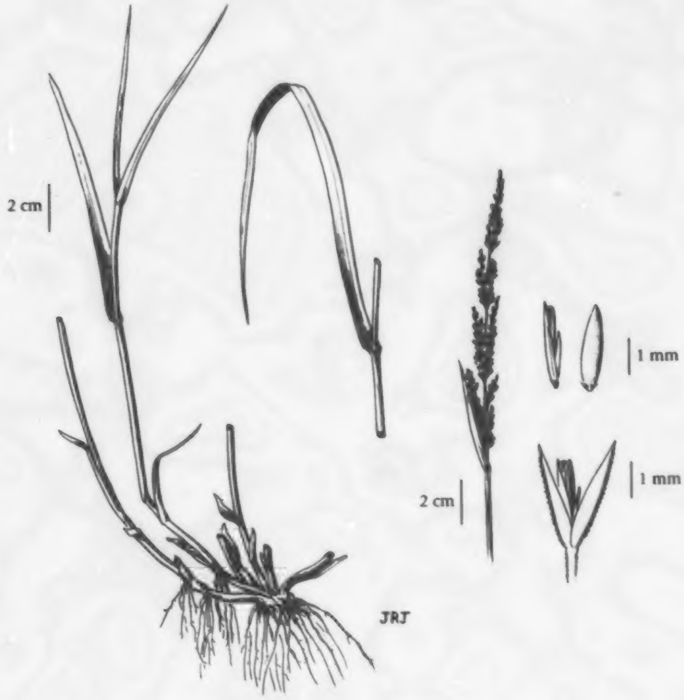
Agrostis scabra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JRJ

Agrostis stolonifera

***Agrostis variablis* Rydb.**

mountain bentgrass; variable bentgrass

HABITAT/RANGE:

Mesic to moist meadows, moraines and rocky slopes in the subalpine to alpine zones; frequent in BC in and E of the Coast-Cascade Mountains; E to AB and S to NM, UT, NV and CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots, sometimes from short rhizomes less than 5 cm long; stems 4-30 cm tall.

Leaves: Sheaths smooth; blades 3-7 cm long, less than 2 mm wide, flat, becoming folded; ligules 1-2.5 mm long.

Flowers: Inflorescence narrowly cylindrical, more or less constricted, usually dense, 2-8 cm long, the branches ascending to erect or appressed, the lower ones 0.5-1.5 cm long, the spikelets numerous, few or none near the branch base; glumes 2-2.5 mm long, rough short-hairy on the keels, pointed; lemmas 1.5-2 mm long, awnless, the callus hairs sparse to abundant, to 0.2 mm long; paleas absent; anthers 0.5-0.7 mm long.

Notes: See comments under *A. humilis.*

AIRA

1. Panicles compact, more or less spikelike, mostly 1-3 cm long; spikelet stalks shorter than spikelets .... *A. praecox*
1. Panicles open, wide, 2-6 cm long; spikelet stalks longer than spikelets .... *A. caryophyllea*

***Aira caryophyllea* L.**

silver hairgrass

HABITAT/RANGE:

Vernally moist to dry, gravelly or rocky, open sites; common on S Vancouver Island, less frequent in the Gulf Islands and lower mainland, rare in the Queen Charlotte Islands; introduced from Europe.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems 1 to several, slender, delicate, hollow, smooth or short-hairy below the nodes, 5-30 cm tall.

Leaves: Sheaths open; blades 4-15 cm long, 0.3-0.7 mm wide, threadlike, in-rolled; ligules 1.5-3.5 mm long, blunt, minutely rough to short-hairy, more or less irregular and jagged.

Flowers: Inflorescence an open panicle, 2-6 cm long and nearly as wide; spikelet stalks longer than spikelets; glumes 2.5-2.8 (3) mm long; lemmas 2-2.3 mm long, awned, the awns 2.5-3.5 mm long; anthers about 0.3 mm long.

***Aira praecox* L.**

early hairgrass

HABITAT/RANGE:

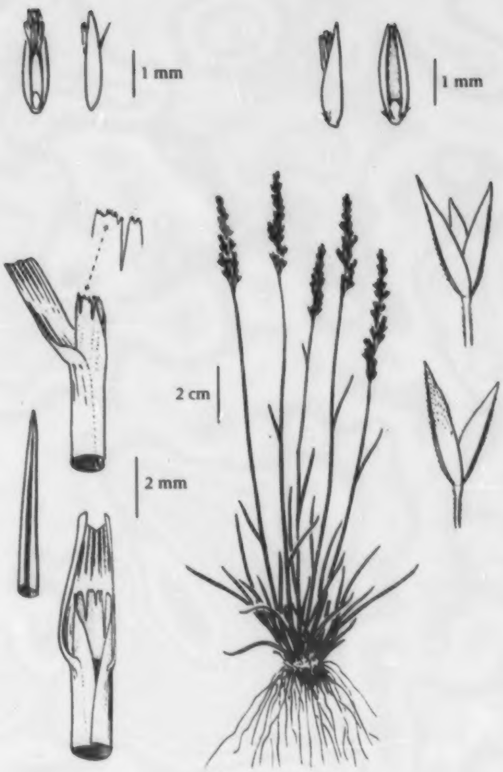
Vernally moist to dry gravelly or rocky bluffs and grassy meadows; common on S Vancouver Island, the Gulf Islands and lower mainland, infrequent N to the Queen Charlotte Islands; introduced from Europe.

DESCRIPTION:

General: Annual, tufted, smooth or more or less rough short-hairy grass from fibrous roots; stems 1 to several, slender, delicate, hollow, 2-12 (20) cm tall.

Leaves: Sheaths open; blades scarcely 0.5 mm wide, threadlike, in-rolled; ligules 1-3 mm long, pointed to blunt, slightly jagged tips.

Flowers: Inflorescence a compact, congested and almost continuous, more or less spikelike panicle, mostly 1-3 cm long, the branches erect; spikelet stalks shorter than the spikelets; glumes (2.7) 3-3.2 (3.5) mm long; lemmas (2.5) 3-3.2 (3.5) mm long, usually lightly rough short-hairy, awned, the awns 2-3 mm long; anthers about 0.2 mm long.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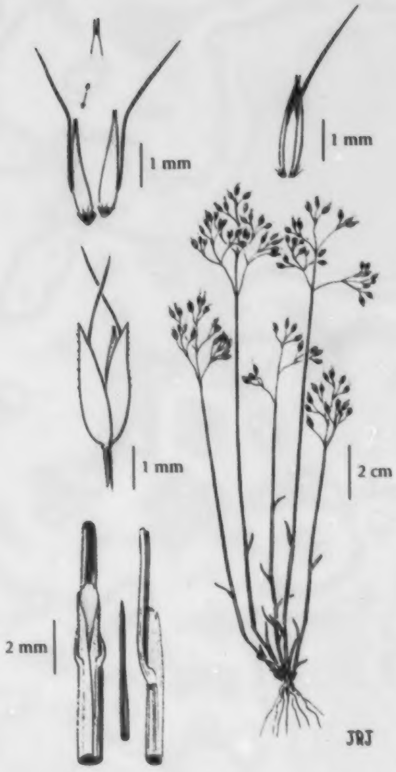
Agrostis variablis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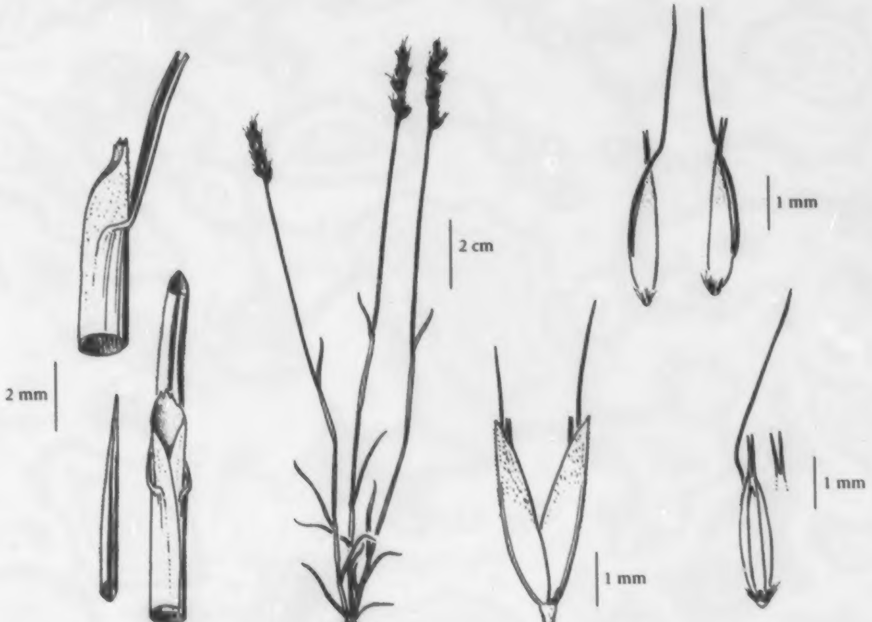
Aira caryophyllea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Aira praecox

ALOPECURUS[7]

1. Spikelets over 4 mm long (excluding awns); anthers more than 2 mm long; glumes sharp-pointed.
    2. Spikes cylindrical; spikelets less than 4.5 mm long; glumes densely covered over the entire surface with long woolly hairs; lemma tips rounded .... *A. alpinus*
    2. Spikes cylindrical; spikelets often over 4.5 mm long; glumes with long hairs mainly restricted to the nerves and keels; lemma tips sharp-pointed .... *A. pratensis*
1. Spikelets less than 4 mm long (excluding awns); anthers mostly less than 2 mm long; glumes rounded (rarely sharp-pointed).
    3. Anthers 1 mm long or less; plants perennials or annuals.
        4. Plants perennials; awns very short, exserted less than 1.5 mm beyond the glumes .... *A. aequalis*
        4. Plants annuals; awns extending 2.5 mm or more beyond the glumes .... *A. carolinianus*
    3. Anthers more than 1 mm long; plants perennials.
        5. Spikes oblong to short-cylindrical; spikelets more than 3 mm long; glumes densely covered over the entire surface with long woolly hairs; lemma tips rounded .... *A. alpinus*
        5. Spikes long-cylindrical; spikelets 3.2 mm long or less; glumes with long hairs restricted to the nerves and keel; lemma tips nearly blunt .... *A. geniculatus*

***Alopecurus aequalis* Scobol.**
little meadow-foxtail; shortawn foxtail

HABITAT/RANGE:

Wet to mesic (including drying) shores, sloughs, streambanks, clearings and ditches from the lowland and steppe to montane zones; common throughout BC; circumboreal, N to AK, YT and NT, E to NF and S to ME, MA, PA, VA, TN, MO, NE, NM, AZ and CA; Eurasia, Greenland.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots (sometimes flowering as a winter annual); stems erect or decumbent and freely rooting at the nodes (especially when growing in standing water), 20-70 cm tall.

Leaves: Sheaths open; blades lax to firm, densely and minutely rough at least on the upper surfaces, (1) 2-5 mm wide; ligules jagged or entire, sharp-pointed but usually folded back, (2) 4-8 mm long.

Flowers: Inflorescence a pale green, cylindrical panicle, mostly 1.5-7 (8) cm long; spikelets less than 4 mm long (excluding the awns); glumes (1.8) 2-2.3 (2.5) mm long, more or less silky over the back, the nerves fringed with long, fine hairs, tips rounded and somewhat wax-papery; lemmas with margins fused for slightly less than 1/2 their length, subequal to the glumes, awned, the awns inserted at or just below midlength, straight, about equal to or slightly longer than the glumes (exserted less than 1.5 mm beyond them), 2-3 mm long; anthers (0.5) 0.6-0.7 (1) mm long.

***Alopecurus alpinus* J.E. Sm.** (*A. alpinus* var. *glaucus* [Less.] Krylov)
alpine meadow-foxtail

HABITAT/RANGE:

Moist meadows in the subalpine zone; rare in NE BC, known only from Beatton River and Pink Mountain; circumpolar, N to AK, YT and NT, and S to CO and UT; Eurasia, Greenland.

DESCRIPTION:

General: Perennial, tufted grass from short rhizomes; stems sometimes stoloniferous, (10) 20-80 cm tall.

Leaves: Sheaths open; blades flat, rough short-hairy, 3-6 mm wide; ligules finely eroded, irregularly jagged, blunt, 1-3 mm long.

Flowers: Inflorescence an oblong to cylindrical panicle, mostly (1) 2-3.5 cm long; spikelets 3-4.5 mm long (excluding the awns); glumes 3-4 mm long, usually purplish-tinged, densely silky-long-hairy or the hairs more or less woolly and curly, tips rounded; lemmas with margins fused for about 1/3 their length, slightly shorter than the glumes, the tips rounded, awned, the awns inserted 1.5 mm above the base, slightly to abruptly bent, from scarcely longer than the lemmas to 1-4 mm longer than the glumes; anthers 1.2-2.3 mm long.

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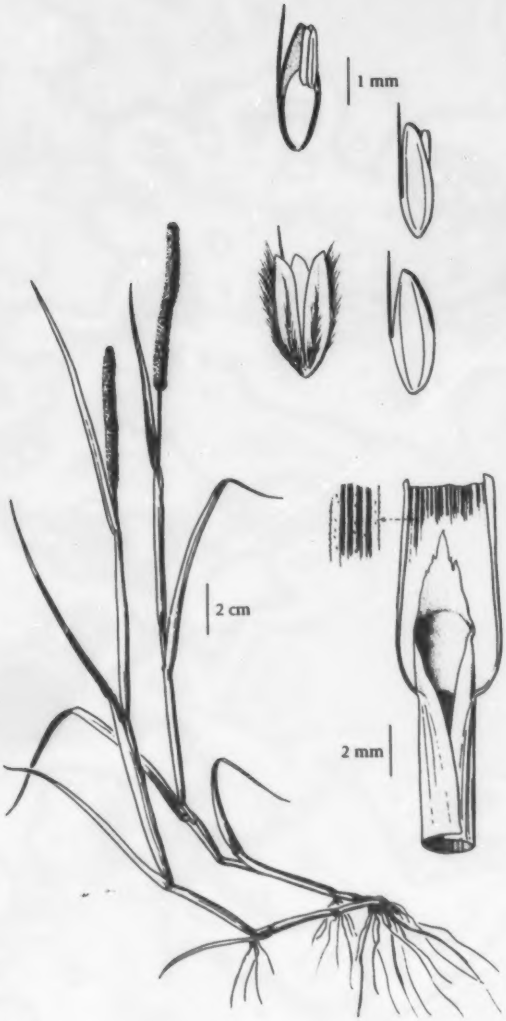
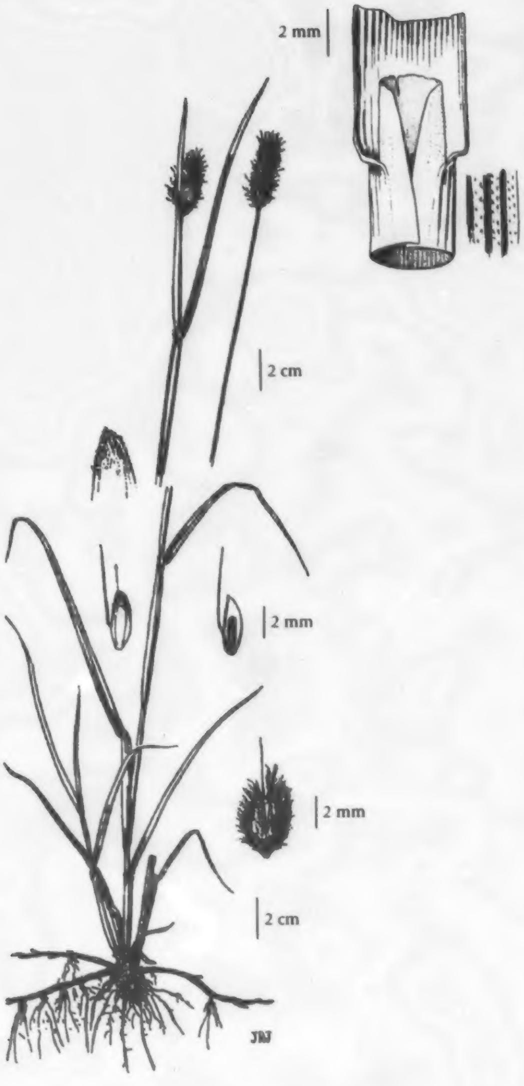
[7] Key from Crins (1994).



Alopecurus aequalis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Alopecurus alpinus

Alopecurus carolinianus **Walt.** (*A. macounii* Vasey)

Carolina meadow-foxtail

HABITAT/RANGE:

Wet to moist vernal pools, roadsides and meadows in the lowland zone; rare on S Vancouver Island, the Gulf Islands and SC BC; E to S SK and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ, MX and CA.

DESCRIPTION:

General: Annual (or winter annual) tufted grass from fibrous roots; stems 10-30 (40) cm tall.

Leaves: Sheaths open; blades more or less rough at least on the upper surfaces, 2-4 mm wide; ligules jagged, long-pointed, (2) 3-4 (5) mm long.

Flowers: Inflorescence a pale green cylindrical panicle, mostly 2-6 cm long; spikelets less than 4 mm long (excluding the awns); glumes (2) 2.3 (2.6) mm long, fringed with fine, stiff hairs on the keels, long-hairy on the lateral nerves, tips rounded; lemmas with margins fused to their midlength, equal to or slightly longer than the glumes, awned, the awns inserted 0.5 mm above the base, usually abruptly bent, slender, longer than the glumes (extending 2.5 mm or more beyond them), about 2-3 mm long; anthers 0.3-0.4 (0.5) mm long.

Alopecurus geniculatus **L.** (*A. pallescens* Piper, *A. saccatus auct. non* Vasey)

water meadow-foxtail

HABITAT/RANGE:

Wet to mesic shores, meadows, ditches and roadsides from the lowland to montane zones; common in SW BC and north to the Queen Charlotte Islands, rare in SE BC (Nelson); introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect to decumbent, rooting at the nodes, (20) 30-50 cm long/tall.

Leaves: Sheaths open; blades flat, rough on the upper surfaces, less rough short-hairy to nearly smooth beneath, 2-6 mm wide; ligules slightly toothed or jagged across the narrow tips, the tips more or less pointed but usually blunt, (2) 3-5 mm long.

Flowers: Inflorescence a pale green to purplish-tinged, cylindrical panicle, mostly 2-7 cm long; spikelets 3.2 mm long or less (excluding the awns); glumes 2 (2.5-3.5) mm long, more or less silky hairy over the back on the keels and nerves, fringed with long, fine hairs on the keels, tips rounded and translucent; lemmas with margins fused to below their midlength, subequal to the glumes, nearly blunt, awned, the awns inserted barely 0.5 mm above the base, abruptly bent and twisted, rather stout, about equal to or slightly longer than the glumes, 4-5 (6) mm long; anthers 1.2-2.2 mm long.

Notes: Although thought to be introduced, *A. geniculatus* occurs in natural habitats, especially in the Queen Charlotte Islands. Includes plants misidentified as *A. saccatus* Vasey, which is a distinct, annual species of CA and OR.

Alopecurus pratensis **L.**

meadow meadow-foxtail

HABITAT/RANGE:

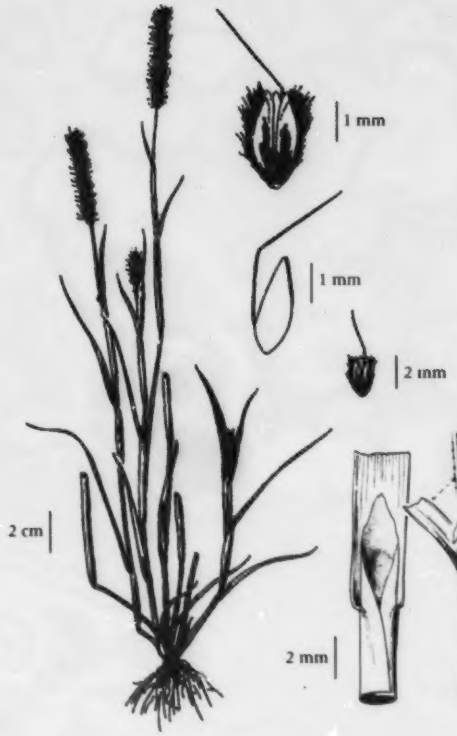
Wet to mesic meadows, fallow fields, and roadsides; infrequent in the lowland, steppe and montane zones in SC and SW BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect or decumbent, sometimes rooting at the lowest nodes, 30-90 (110) cm long/tall.

Leaves: Sheaths open; blades flat, rough, mostly 3-10 mm wide; ligules of the lower leaves nearly entire, blunt, 1.5-2 mm long, those of the upper leaves finely jagged with fine hairs, sometimes more or less jagged, blunt to rounded, up to 6 mm long.

Flowers: Inflorescence a cylindrical panicle, 3-10 cm long, the ends slightly tapered but not sharp-pointed (rounded); spikelets often over 4.5 mm long (excluding awns); glumes with the nerves and keels fringed with long, fine hairs, sharp-pointed, (4) 5 (6) mm long; lemmas smooth or hairy on the keels above, the margins fused for 1 mm or less, subequal to the glumes, sharp-pointed, awned, the awns inserted at about 1 mm above the base, abruptly bent, exserted 2-5 mm beyond the glumes; anthers 2.3-3.5 mm long.


1 mm
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2 cm
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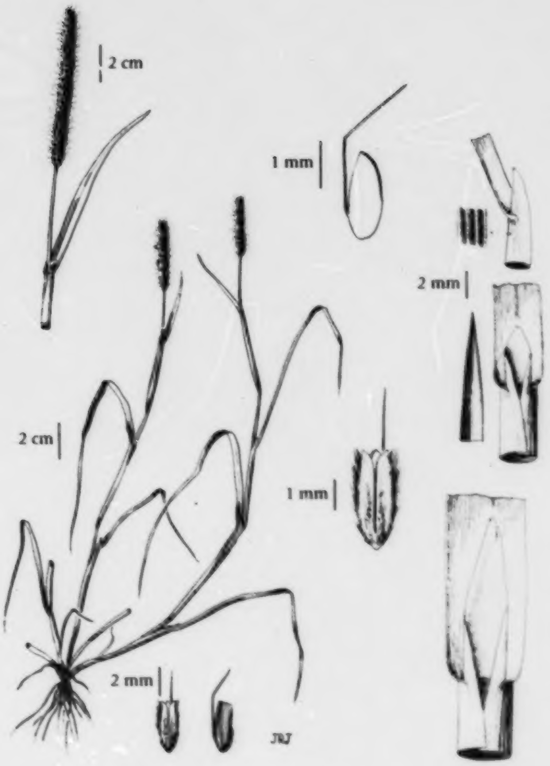
Alopecurus carolinianus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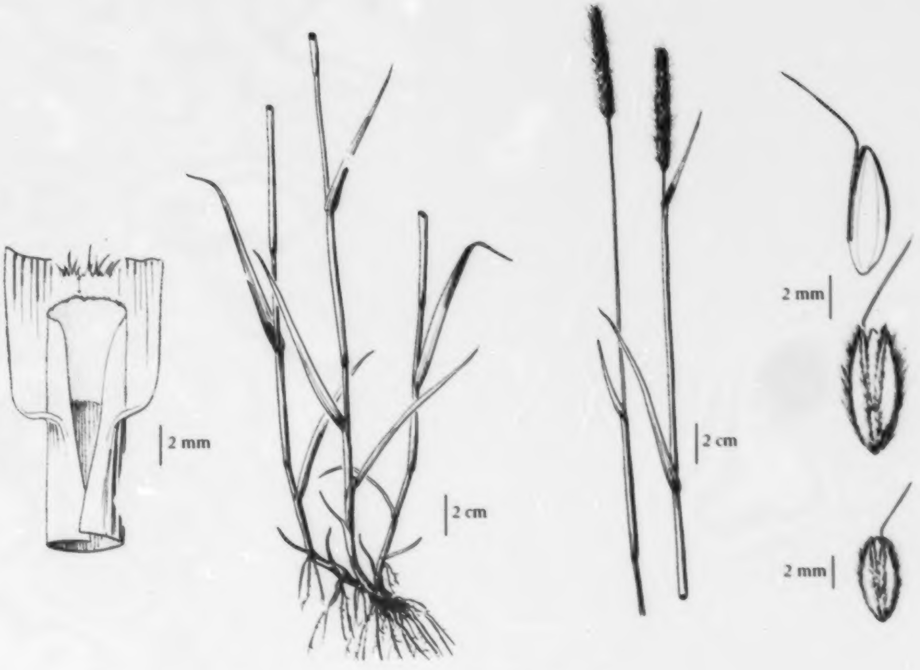
JKJ

Alopecurus geniculatus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2 mm

Alopecurus pratensis

AMMOPHILA

Ammophila arenaria **(L.) Link**

European beachgrass

HABITAT/RANGE:

Sand dunes and sandy beaches in the lowland zone; locally frequent on the Queen Charlotte Islands, Vancouver Island and the lower mainland (Crescent Beach); introduced from Europe.

DESCRIPTION:

General: Perennial grass from rhizomes, the rhizomes tough, elongate, connecting tufts; stems wiry, hollow, up to 110 cm tall.

Leaves: Sheaths open, smooth; blades stiff, 2-4 mm wide, in-rolled, smooth; ligules 10-25 mm long, short-hairy, pointed, the margins entire but sometimes jagged.

Flowers: Inflorescence a spikelike panicle, (10) 15-30 cm long, mostly 15-20 mm wide when pressed; glumes pale, 10-14 mm long, subequal, the upper ones longer; lemmas 8-13 mm long, shorter than the lower glumes, usually with the midribs barely continuing as short points just below the tips, the callus bearding 2-3 mm long; rachilla vestiges about 1.5 mm long; anthers about 4.5 mm long; lodicules about 1.5 mm long.

ANTHOXANTHUM

1. Plants annual, mostly 10-30 cm tall; blades 1-2 mm wide; ligules 0.5-2 mm long .... *A. aristatum*

1. Plants perennial, mostly 30-60 cm tall; blades (2) 3-7 mm wide; ligules (1) 2-3 mm long .... *A. odoratum*

Anthoxanthum aristatum **Boiss.** (*A. puelii* Lec. & Lam.)

annual vernalgrass

HABITAT/RANGE:

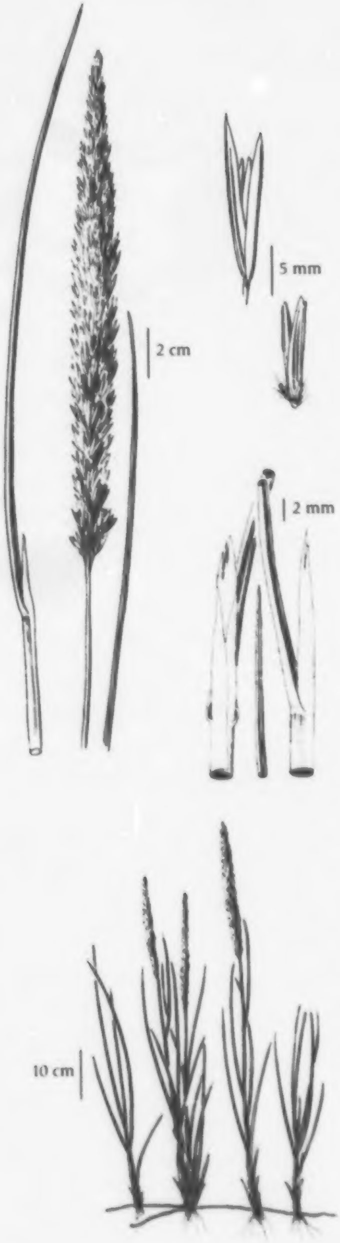
Mesic to dry fields, roadsides and waste areas in the lowland, steppe and montane zones; rare in SW and SC BC; introduced from Europe.

DESCRIPTION:

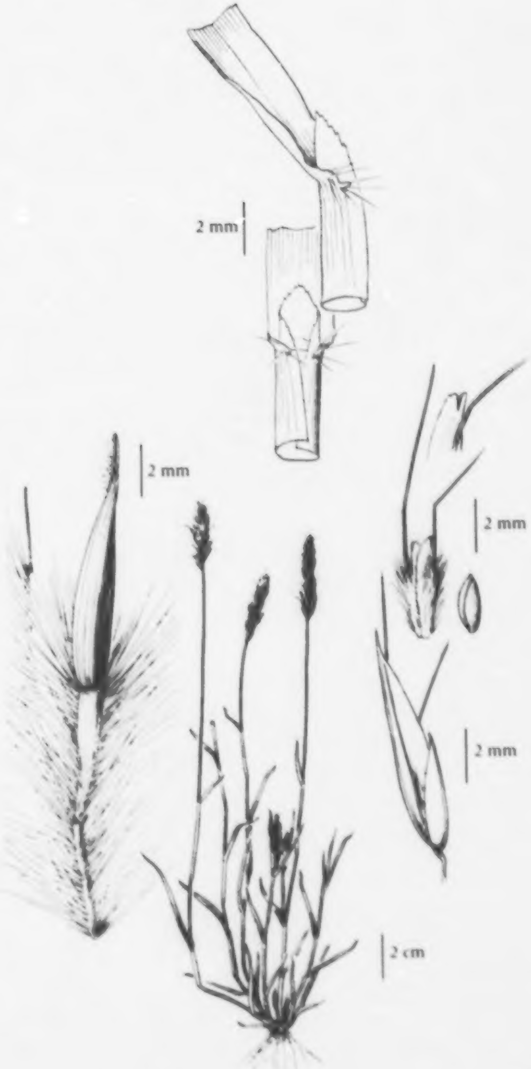
General: Annual, tufted grass from fibrous roots; stems hollow, mostly 10-30 cm tall.

Leaves: Sheaths open, usually smooth; blades 1-2 mm wide, flat, minutely rough to soft-hairy, the lower margins usually fringed with soft hairs; ear-shaped lobes at the leaf-bases up to 0.5 mm long or these sometimes lacking; ligules 0.5-2 mm long, the margins minutely eroded, blunt to pointed.

Flowers: Inflorescence a narrow, congested panicle, 1.5-4 cm long; glumes pointed, rough short-hairy to short-hairy, the lower ones 4-5 mm long, 1-nerved, the upper ones 8-10 mm long, 3-nerved; sterile lemmas about equal, about 3 mm long, narrow, rounded and shallow-notched at the tips, soft-hairy to stiff-hairy, the margins quite eroded at the tips, the first ones awned from the back somewhat above the midlength, the awns about 3 mm long, the second ones awned from well below the midlength, the awns 7-10 mm long, twisted and abruptly bent; fertile lemmas about 2 mm long, more or less firm, smooth, pale brown; paleas nearly equal to the lemmas; anthers 4-5 mm long.


5 mm
2 cm
2 mm
10 cm

Ammophila arenaria


2 mm
2 mm
2 mm
2 mm
2 cm

Anthoxanthum aristatum

Anthoxanthum odoratum **L.**

sweet vernalgrass

HABITAT/RANGE:

Mesic to dry lawns, fields, waste areas, rock outcrops and meadows in the lowland zone; common on S Vancouver Island, rare N to the Queen Charlotte Islands; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems hollow, 30-60 cm tall.

Leaves: Sheaths open, usually smooth; blades (2) 3-7 mm wide, flat, usually slightly soft-hairy or fringed with soft hairs at least near the base, the hairs 1-2 mm long, with ear-shaped lobes at the leaf-bases well developed; ligules (1) 2-3 mm long, membranous, the margins minutely fringed with small hairs.

Flowers: Inflorescence a narrow, congested panicle, 2-9 cm long, tawny; glumes pointed, rough short-hairy, the lower ones 4-5 mm long, 1-nerved, the upper ones 8-10 mm long, 3-nerved; sterile lemmas more or less equal, about 3 mm long, narrow, rounded and shallow-notched at the tips, soft-hairy to stiff-hairy, the first ones awned from the back somewhat above the midlength, the awns about 3 mm long, the second ones awned from well below the midlength, the awns 7-10 mm long, twisted and abruptly bent; fertile lemmas about 2 mm long, firm, smooth, brown; paleas nearly equal to the lemmas; anthers 4-5 mm long.

APERA

Apera interrupta **(L.) Beauv.** (*Agrostis interrupta* L.)

interrupted apera

HABITAT/RANGE:

Dry waste areas in the lowland, steppe and montane zones; infrequent in S BC; introduced from Europe.

DESCRIPTION:

General: Annual, tufted or not, smooth grass from fibrous roots; stems 1 to several, hollow, mostly 10-40 (60) cm tall.

Leaves: Sheaths open; blades 1-3 mm wide, flat to folded; ligules 2-3 (5) mm long, the margins strongly jagged, blunt, usually smooth.

Flowers: Inflorescence a narrow, interrupted panicle, (3) 5-10 (15) cm long, greenish; lower glumes scarcely 2 mm long, about 3/4 the length of the upper ones; lemmas about 2 mm long, awned below the tips, the straight, delicate awns 6-7 mm long; paleas nearly equal to the lemmas; rachillas prolonged as bristles about 0.5 mm long; anthers 0.5 mm long; lodicules about 0.5 mm long.

ARCTAGROSTIS

Arctagrostis latifolia **(R. Br.) Griseb. ssp.** ***arundinacea*** **(Trin.) Tzvelev**

polargrass

HABITAT/RANGE:

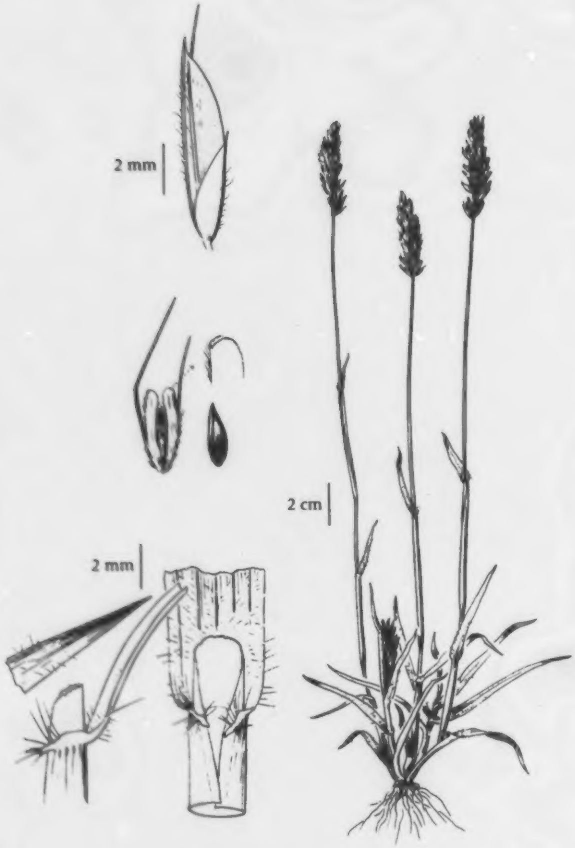
Mesic to wet meadows, fens, gravel bars and open forests from the montane to subalpine zones; frequent in N BC north of 57° N; amphiberingian, N to AK, YT and NT and E to AB; E Asia

DESCRIPTION:

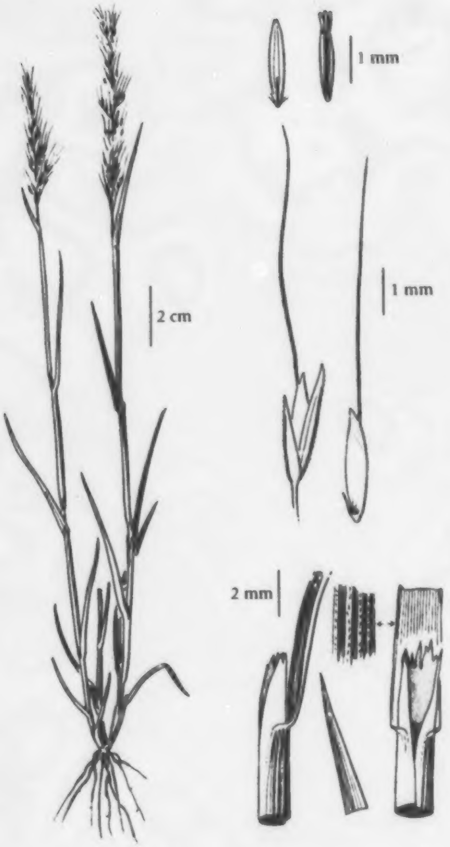
General: Perennial grass from rhizomes; stems solitary or forming tufts, hollow, 25-145 cm tall.

Leaves: Sheaths open; blades rough, flat, 2-10 (15) mm wide; ligules often suffused red or purplish at the base, jagged, 3.5-6.5 (9.5) mm long.

Flowers: Inflorescence a contracted to open, yellowish or green or more commonly purplish panicle, 5-30 (43) cm long, the branches ascending to more or less erect or less commonly spreading; glumes unequal, the lower ones 1.7-4.7 mm long; lemmas longer than the glumes, 3-6 mm long, unawned, the calluses not long-hairy; paleas nearly equal to the lemmas; rachilla joints to about 1 mm long; anthers mostly 1.5-3 mm long.



Anthoxanthum odoratum


1 mm
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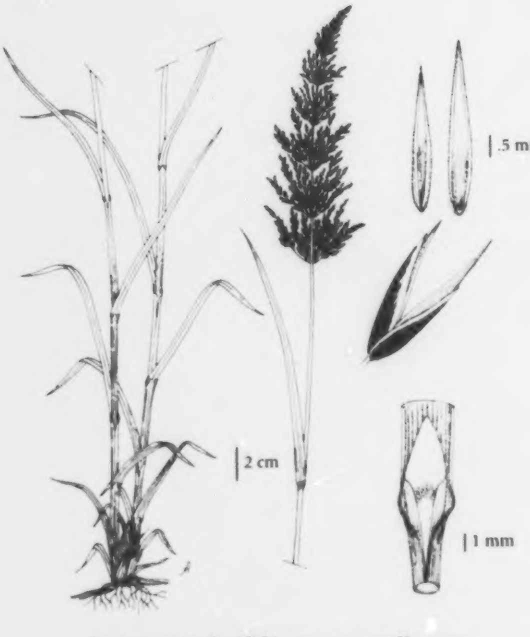
Apera interrupta



Arctagrostis latifolia ssp. *arundinacea*

ARCTOPHILA[8]

Arctophila fulva **(Trin.) Andersson** (*Colpodium fulvum* [Trin.] Griseb.)
pendantgrass

HABITAT/RANGE:

Lake and pond margins, wet meadows and streambanks in the montane to alpine zones; rare in NW BC; circumpolar, N to AK, YT, and NT and E to PQ and Labr.; W Greenland, Eurasia.

DESCRIPTION:

General: Perennial grass from long creeping rhizomes; stems erect or decumbent at the base, (5) 10-80 (100) cm tall.

Leaves: Sheaths closed about 1/2 their length, smooth; blades 1-5 (10) mm wide, usually flat, smooth; ligules 1-6 (8) mm long, membranous, the margins jagged.

Flowers: Inflorescence an open panicle, 3-20 cm long, the branches stiff to pendulous; spikelets (1-) 2- to 7- (9-) flowered, 2.5-8 mm long; glumes 1.5-4 mm long, shorter than the adjacent lemmas, broadly lanceolate to egg-shaped, translucent; lemmas 3-4 mm long, egg-shaped, rounded, smooth, the nerves 3 (5), obscure, the calluses with a few stiff hairs; anthers 1.2-3 mm long.

ARISTIDA

Aristida purpurea **Nutt. var. *longiseta*** **(Steud.) Vasey** (*A. longiseta* Steud. var. *robusta* Merr.)
red three-awn

HABITAT/RANGE:

Dry grasslands, shrublands and forest openings in the steppe and lower montane zones; frequent in SC BC, less frequent eastward in S BC; E to SW MB and S to LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems hollow, minutely rough, mostly (15) 20-40 cm tall.

Leaves: Sheaths open; blades 1-2 mm wide, 7-25 cm long, in-rolled, minutely rough; ligules scarcely 0.5 mm long, membranous, the frontal margins with hairs 2-3 mm long.

Flowers: Inflorescence a narrow panicle, 5-10 cm long, the branches mostly loosely ascending; lower glumes 7-13 mm long, about 1/2 the length of the upper ones, awn-tipped; florets 10-15 mm long, the calluses flattened, about 1 mm long; lemma awns (4) 5-8 cm long, 3-branched, the lateral branches divergent; paleas 2-2.5 mm long, slightly surpassed by the lodicules.

ARRHENATHERUM

Arrhenatherum elatius **(L.) Beauv. *ex* J. & K. Presl** (*A. elatius* var. *bulbosum* [Willd.] Spenner)
tall oatgrass; false oatgrass

HABITAT/RANGE:

Mesic to dry meadows, rock outcrops, fields and disturbed sites in the lowland, steppe and montane zones; frequent in SW BC, rare in SC BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect, hollow, sometimes hairy at the nodes, the base frequently enlarged and bulblike, often rooting at the first few nodes, but not truly rhizomatous, mostly 80-150 cm tall.

Leaves: Sheaths open, usually smooth, sometimes rough; blades flat, 4-8 (10) mm wide, 7-25 cm long, rough and often soft-hairy; ligules 1-2 (3) mm long, membranous, the margins jagged and fringed with small hairs, finely short-hairy, blunt.

Flowers: Inflorescence a narrow, shining panicle, 10-30 cm long; glumes awnless, the lower glumes mostly 5-7 mm long, the upper ones 7-10 mm long; lemmas 5- to 7-nerved, hairy on the callus, awn of the lower lemmas 10-20 mm long, those of the upper lemmas 4-6 (15) mm long or rarely lacking; paleas about equalling the lemmas; anthers about 4 mm long; lodicules 2.5-3.5 mm long.

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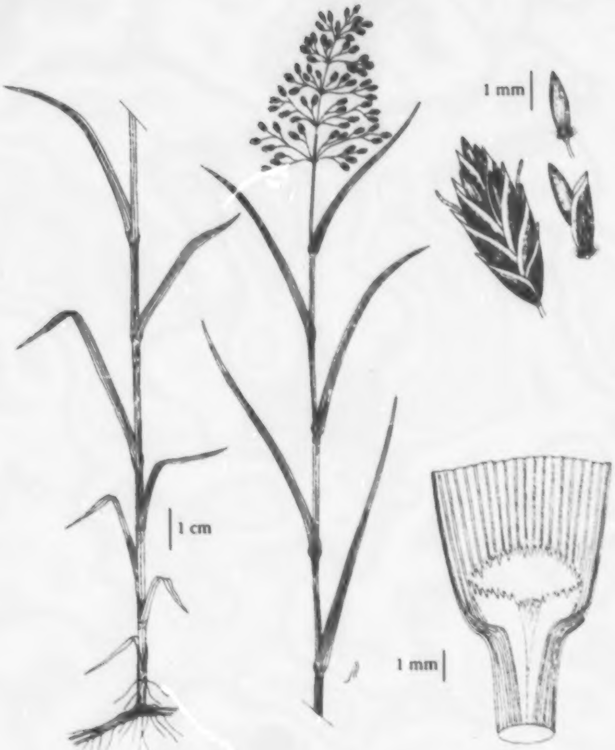
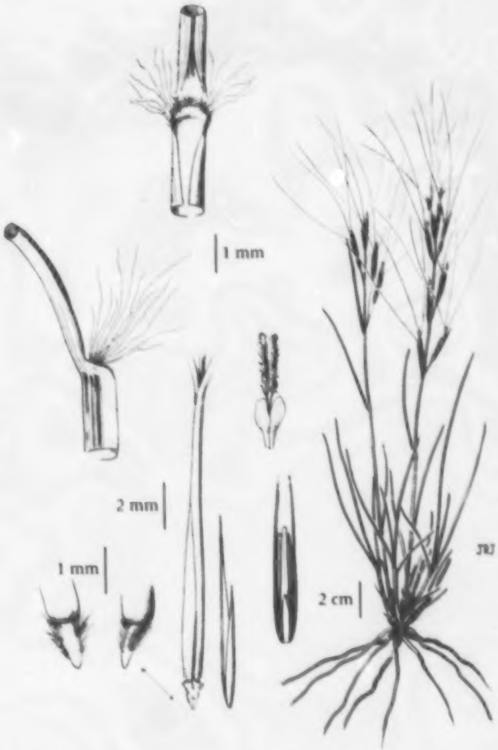
[8] Contributed by S. Darbyshire.



Arctophila fulva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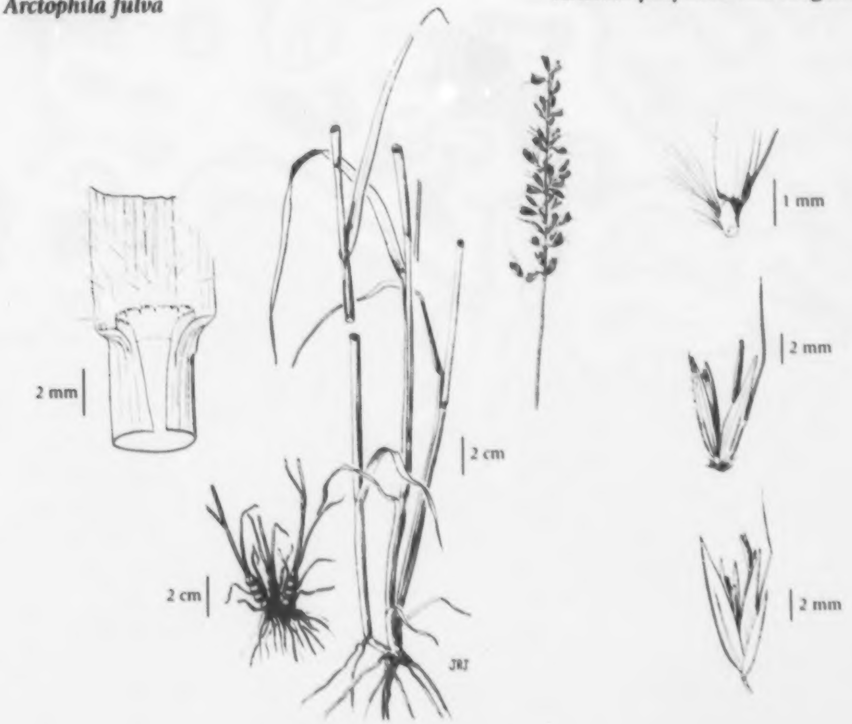
JRJ

Aristida purpurea var. *longiseta*


1 mm
2 mm
2 mm
2 cm
2 cm
2 mm
JRJ

Arrhenatherum elatius

AVENA

1. Lemmas usually stiff-hairy, thin and membranous at the tips, with abruptly bent awns on the lower 2 florets .... *A. fatua*
1. Lemmas smooth, the upper portions greenish and thickened, with straight, slightly twisted or curved awns on the lowermost floret, or awnless .... *A. sativa*

***Avena fatua* L.**

wild oat

HABITAT/RANGE:

Dry to mesic fields and waste areas in the lowland, steppe and montane zones; infrequent in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems hollow, up to 80 cm tall.

Leaves: Sheaths open; blades 3-10 (15) mm wide, rough and often more or less soft-hairy; ligules (1) 3-6 mm long, membranous, short-hairy, rounded to pointed, the margins jagged and fringed with small hairs.

Flowers: Inflorescence a large, open panicle, the branches pendulous; spikelets usually with 3 florets, in addition to the rudiments tipping the prolonged rachilla, the lower 2 florets with much twisted, strongly bent awns up to 4 cm long; glumes 20-25 mm long, more or less equal, both usually surpassing the florets; lemmas hardened at the base, the nerves obscure, usually stiff-hairy or nearly smooth, the upper portions greenish and plainly ribbed, the tips thin and membranous and sharply bilobed for about 1 mm, the calluses densely bearded; rachilla readily disarticulating between the florets, strongly bearded or sometimes nearly smooth; anthers 4-5 mm long; lodicules nearly 2 mm long.

***Avena sativa* L.**

common oat

HABITAT/RANGE:

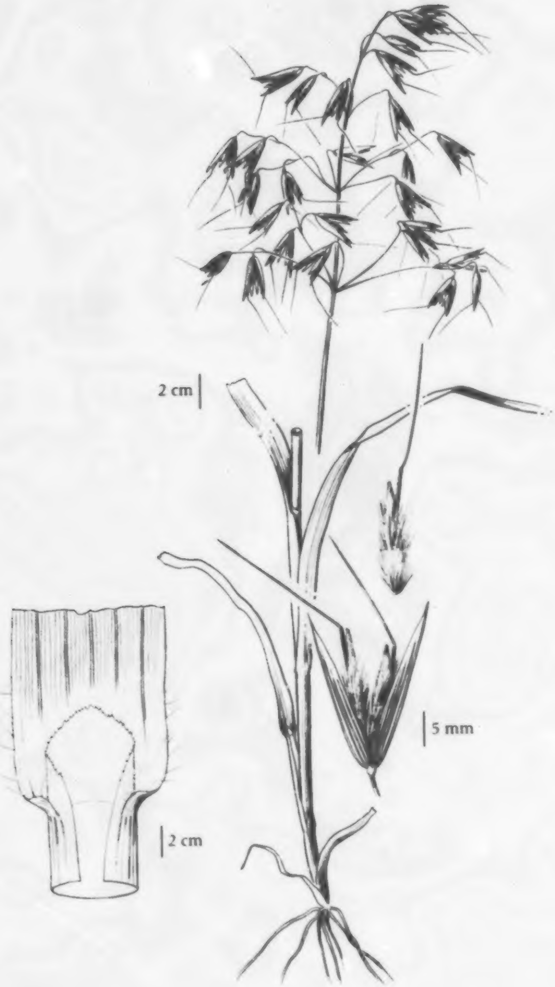
Dry to mesic fields, roadsides, railways and waste areas in the lowland, steppe and montane zones; infrequent in S BC; introduced from Eurasia.

DESCRIPTION:

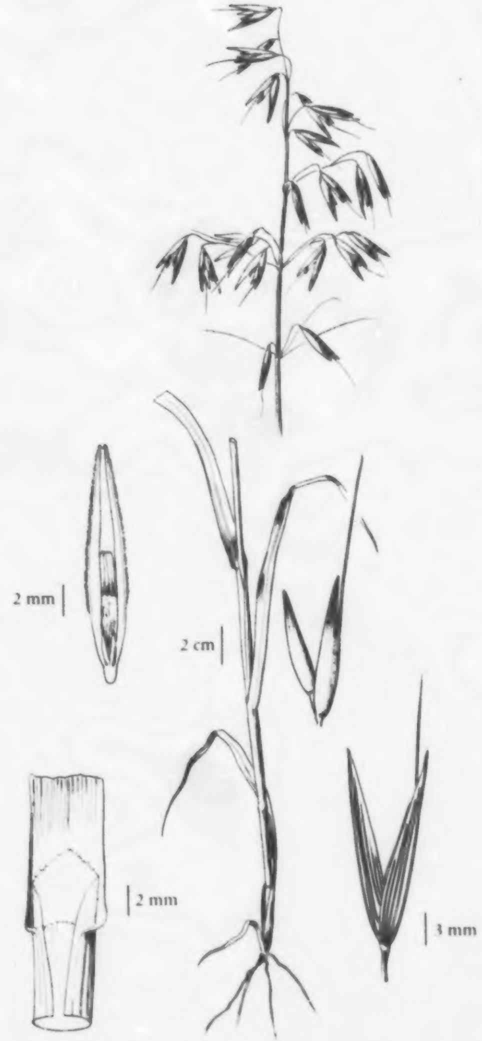
General: Annual grass from fibrous roots; stems hollow, up to 100 cm tall.

Leaves: Sheaths open; blades flat; ligules 2-4 mm long, membranous, short-hairy, rounded, the margins finely jagged and fringed with small hairs.

Flowers: Inflorescence a large, open panicle, the branches pendulous; spikelets usually with 2 or sometimes, 3 florets; glumes 20-25 mm long, about equal, both usually surpassing the florets; lemmas lanceolate, the lower lemmas with awns arising just above the middle, the awns straight to slightly twisted or curved, up to 15 mm longer than the lemmas, the upper lemma awnless; lemmas much hardened and smooth to above midlength, the upper portions thickened, greenish and prominently ribbed, entire or very shallowly bilobed at the tips, the calluses smooth or sparsely bearded; rachillas not readily disarticulating between the florets, smooth or sparsely stiff-hairy, firm; anthers 3-4 mm long; lodicules linear, about 1.8 mm long.



Avena fatua


2 mm
2 cm
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3 mm

Avena sativa

BECKMANNIA

***Beckmannia syzigachne* (Steud.) Fern.** (*Beckmannia syzigachne* ssp. *baicalensis* [Kusnez.] Koyama & Kawano, *B. erucaeformis auct. non* [L.] Host, *B. erucaeformis* [L.] Host var. *uniflora* Scribn.)

American sloughgrass

HABITAT/RANGE:

Shores, marshes, wet meadows and ditches in the steppe and montane zones; frequent throughout BC east of the Coast-Cascade Mountains; N to AK, YT and NT, E to PQ and S to ME, MA, PA, OH, IL, MO, KS, NM, AZ and CA.

DESCRIPTION:

General: Annual grass often with stolons; stems erect, hollow, up to 100 cm tall.

Leaves: Sheaths open; blades mostly 5-10 mm wide, flat; ligules 6-11 mm long, pointed, entire or commonly with jagged margins, usually folded back in growth, hairy.

Flowers: Inflorescence of numerous, short, appressed to ascending, narrow, congested, racemose to paniculate spikes, up to 30 cm long, the spikes 1-2 cm long; spikelets 1-flowered, articulating below the glumes, unstalked, borne closely aggregated in 2 rows on one side of the rachis; glumes strongly compressed and inflated, semi-circular, 3-nerved, abruptly pointed, about 3 mm long; lemmas lanceolate, much narrower than the glumes, lightly 5-nerved, somewhat long-pointed, slightly larger than the 2-nerved paleas, 1.8-3.5 mm long; rachillas not prolonged; anthers 1-1.4 mm long; lodicules almost 1 mm long.

BOUTELOUA

***Bouteloua gracilis* (Willd. *ex* Kunth) Lag. *ex* Griffiths** (*Chondrosum gracile* Willd. *ex* Kunth)

blue grama

HABITAT/RANGE:

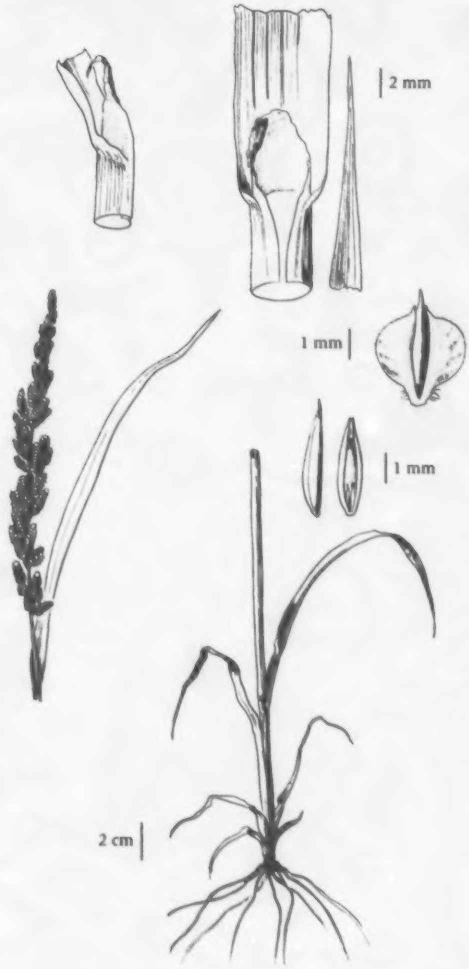
Dry grasslands in the steppe zone; rare in SC and SE BC; E to S MB and S to ME, NY, SC, MO, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from short rhizomes, forming thick mats; stems slender, 20-40 (50) cm tall.

Leaves: Leaves mostly basal and persistent; sheaths open, smooth to soft-hairy, the throats with numerous, stiff hairs mostly 1-1.5 (2) mm long, the collars usually smooth; blades 1-2 mm wide, flat, becoming crisp or curly in midwinter, smooth or commonly soft-hairy, the hairs from minutely blistery bases; ligules about 0.5 mm long.

Flowers: Inflorescence of 2 (sometimes 1 or 3), straight or crescent-shaped, racemose spikes, 1.5-4 (5) cm long, short-stalked; spikelets usually 30-80, unstalked in 2 rows on one side of the rachis, with a single perfect flower below 1 or 2 greatly reduced sterile flowers, often purplish, the rudimentary florets consisting of lemmas only with awns 5-6 mm long; glumes about 2-3 and 3-5 (5.5) mm long, the lower much smaller and narrower, 1-nerved, fringed with hairs and more or less blistery on the keels; lowermost (fertile) lemmas about 6 mm long including the central awn-tipped lobes, 3-nerved; paleas about equalling the bodies of the lemmas, 2-nerved; rachillas not prolonged; anthers about 3 mm long; lodicules about 0.3 mm long.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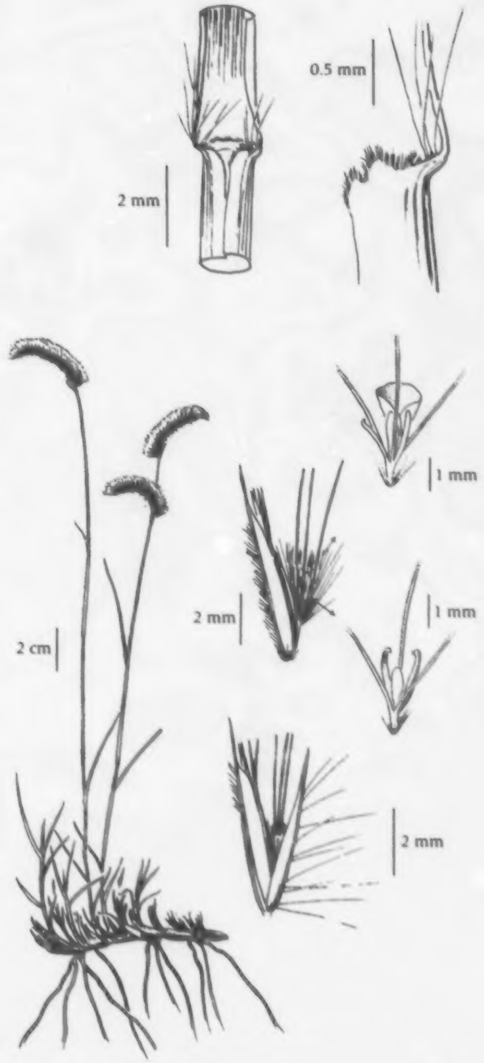
2 cm

Beckmannia syzigachne


0.5 mm
2 mm
1 mm
2 mm
1 mm
2 cm
2 mm

Bouteloua gracilis

BRIZA

1. Spikelets 1 to 12, 10-20 (25) mm long .... *B. maxima*
1. Spikelets usually more than 12, 2-5 mm long .... *B. minor*

***Briza maxima* L.**

big quaking grass

HABITAT/RANGE:

Dry disturbed sites and waste areas in the lowland and steppe zones; rare in SW and SC BC; introduced from Europe.

DESCRIPTION:

General: Annual grass from fibrous roots; stems hollow, erect or abruptly bent below, 20-60 cm tall.

Leaves: Sheaths open, smooth; blades flat, 3-8 mm wide, the margins rough short-hairy; ligules membranous, 2-5 mm long.

Flowers: Inflorescence a panicle 2-10 cm long, with all flowers and branches borne on one side of the rachis, drooping at the tips, the branches usually solitary, each with 1 to 3 spikelets, the spikelets 1 to 12, 10-20 (25) mm long, 7- to 20-flowered, drooping from slender stalks, smooth or appressed-hairy, often reddish-brown, articulating above the glumes; glumes 5-7 mm long, concave, nearly globe-shaped, 5- to 9-nerved, more or less leathery; lemmas 6-8 mm long, similar to the glumes, 7- to 9-nerved; paleas up to 2/3 as long as the lemmas; lodicules 2, thin, membranous, about 0.7 mm long; ovaries smooth; anthers scarcely 1 mm long.

***Briza minor* L.**

small quaking grass

HABITAT/RANGE:

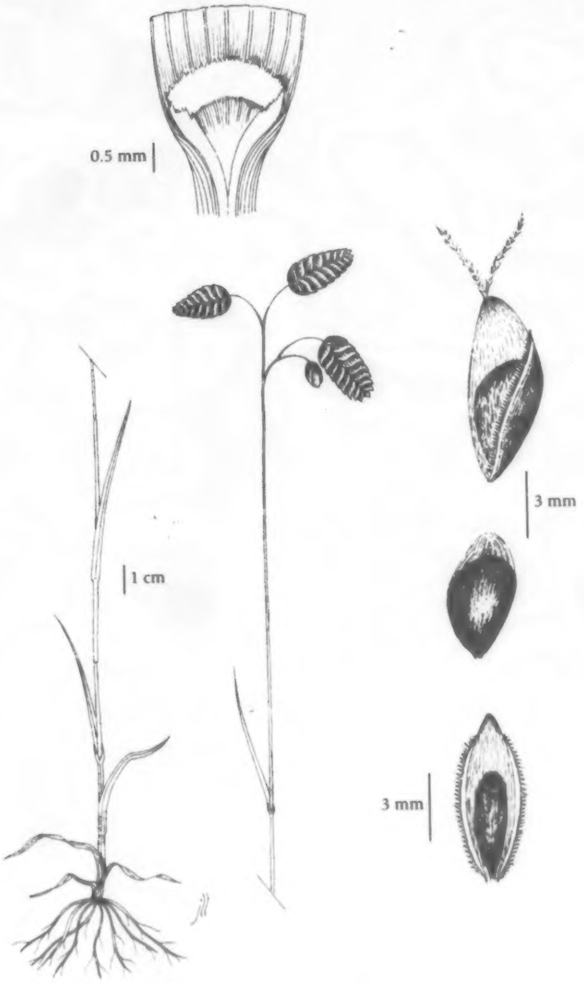
Dry disturbed sites and waste areas in the lowland zone; rare in SW BC; introduced from Europe.

DESCRIPTION:

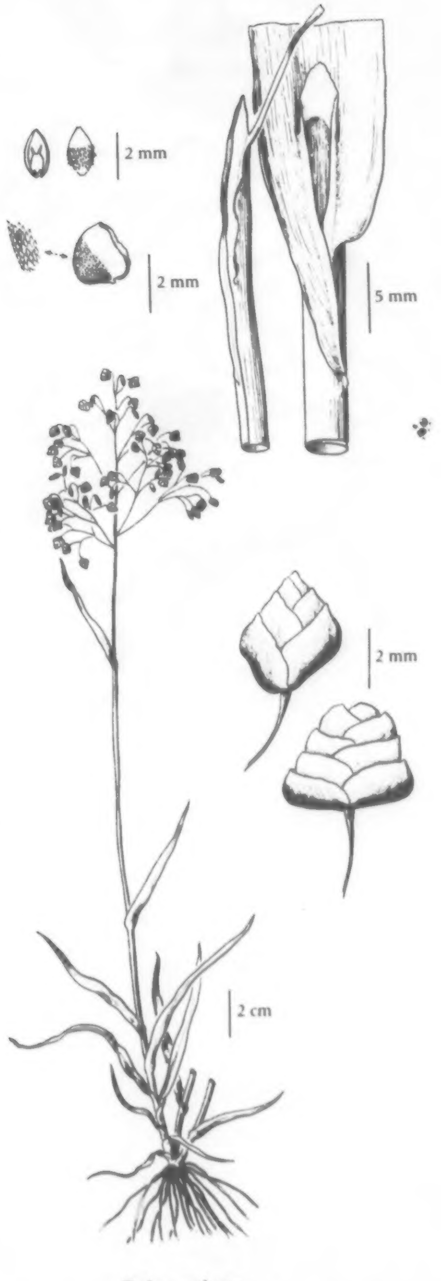
General: Annual grass from fibrous roots; stems hollow, erect, (5) 10-60 cm tall.

Leaves: Sheaths open, smooth; blades flat, 2-8 mm wide, the margins freed from the sheaths at different levels; ligules membranous, 3-6 mm long, higher in the centres opposite the throats, but the free membranes only 1-4 mm long.

Flowers: Inflorescence an open, pyramidal panicle 5-15 cm long, much branched, lax, the lower branches 1 or 2 together, spreading; spikelets usually more than 12, broadly triangular, 2-5 mm long, (3-) 4- to 6-flowered, compressed, usually pale green, articulating above the glumes, the slender stalks usually longer than the spikelets; glumes 2-3.5 mm long, concave, hood-shaped, 3- to 5-nerved, more or less leathery, at right angles to the rachillas; lemmas 1.5-2 mm long, awnless, obscurely nerved, egg-shaped, blunt, heart-shaped at the base, pimpled on the back; paleas somewhat shorter than the lemmas; lodicules 2, thin, membranous, about 0.7 mm long; ovaries smooth; anthers scarcely 1 mm long.


0.5 mm
1 cm
3 mm
3 mm

Briza maxima


2 mm
2 mm
5 mm
2 mm
2 cm

Briza minor

BROMUS

Notes: The genus *Bromus*, as with many of our complex genera, has received markedly varying taxonomic treatments. This confusion is perpetuated by a few taxonomists who give taxonomic recognition to many of the minor morphological variants within a species. In concurrence with the majority of taxonomists, formal recognition is not given in this treatment to the following species: *B. aleutensis, B. marginatus, B. porteri* and *B. richardsonii.*

1. Plants introduced annuals; lemmas bidentate, the teeth over 0.5 mm long (except in *B. briziformis* which has inflated, awnless or short-awned lemmas, the awns 1 mm long or less).
    2. Lemmas narrowly sharp-pointed to long-pointed, the apical teeth long-pointed to bristlelike usually more than 2 mm long, the awns 10-60 mm long; lower glumes 1-nerved.
        3. Lower glumes 4-6 (9) mm long; lemma awns 10-17 mm long .... *B. tectorum*
        3. Lower glumes 6-20 mm long; lemma awns 18-60 mm long.
            4. Lower glumes 6-14 mm long; awns 15-30 mm long .... *B. sterilis*
            4. Lower glumes 13-20 (22) mm long; awns 35-60 mm long .... *B. rigidus*
    2. Lemmas rounded at the tips, often with shallow notches, the teeth usually less than 1 mm long, the awns 0.5-12 (15) mm long or lacking; lower glumes 3- to 5- (7)-nerved.
        5. Lemmas inflated, 2.8-4 mm wide, awnless or the awns scarcely 1 mm long .... *B. briziformis*
        5. Lemmas not inflated, 1.2-2.5 mm wide or 6-8 mm wide in *B. squarrosus,* the awns 0.5-12 (14) mm long.
            6. Panicle dense or narrow, usually erect.
                7. Lemmas papery, with prominent nerves; anthers less than 1 mm long .... *B. hordeaceus*
                7. Lemmas rough, lightly nerved; anthers (0.5) 1.5-2 mm long .... *B. racemosus*
            6. Panicle lax, spreading or nodding.
                8. Lemmas not overlapping in fruit, the margins usually in-rolled; leaf sheaths usually smooth, overlapping in fruit .... *B. secalinus*
                8. Lemmas somewhat compressed from top to bottom, the margins not in-rolled; leaf sheaths soft-hairy.
                    9. Panicle branches stiffly spreading or drooping, not zig-zag; awns straight .... *B. commutatus*
                    9. Panicle branches lax or wavy (often with all flowers borne on 1 side of the axis in *B. squarrosus);* awns broadly spreading, flattened at the base.
                        10. Panicle racemose with spikelets on one side, the spikelets 15-70 mm long, somewhat compressed laterally, with branches as long as or shorter than the spikelets .... *B. squarrosus*
                        10. Panicle open with spikelets equally dispersed, somewhat drooping, the spikelets 20-40 mm long, nearly circular in cross-section, tapered, with branches usually longer than the spikelets .... *B. japonicus*

1. Plants native perennials (except the introduced perennial *B. inermis* ssp. *inermis*); lemmas minutely bidentate, the teeth 0.5 mm long or less.
   11. Spikelets strongly compressed; lemmas more or less keeled.
      12. Ear-shaped lobes lacking at leaf-bases; ligules mostly more than 4 mm long; spikelets 1 or 2 at tips of branches; leaves mostly more than 1 cm wide .... *B. sitchensis*
      12. Ear-shaped lobes usually present at leaf-bases; ligules mostly less than 4 mm long; spikelets several per branch; leaves mostly less than 1 cm wide .... *B. carinatus*
   11. Spikelets not strongly compressed; lemmas rounded on the back (sometimes less rounded in *B. pacificus*).
      13. Plants rhizomatous; awns 1-2 (4) mm long or lacking .... *B. inermis*
      13. Plants non-rhizomatous; awns 1.5-12 mm long.
         14. Lemmas evenly hairy on the backs, sometimes the margins with longer hairs; glumes usually hairy.
            15. Ligules 0.5-1.5 (2) mm long; awns 1.5-3 (4) mm long; plants occurring E of the Coast-Cascade Mountains .... *B. anomalus*
            15. Ligules 2-5 mm long; awns (4) 7-12 mm long; plants occurring W of the Coast-Cascade Mountains .... *B. pacificus*
         14. Lemmas hairy on the margins and usually on the lower portions of the backs; glumes smooth or with rough short-hairy nerves or keels.
            16. Ligules 0.5-1 (1.5) mm long; awns 2-4 (5) mm long .... *B. ciliatus*
            16. Ligules (2) 3-5 mm long; awns (3) 5-10 mm long .... *B. vulgaris*

***Bromus anomalus* Rupr.** (*B. ciliatus* var. *porteri* [Coult.] Rydb., *B. porteri* [Coult.] Nash)

nodding brome

HABITAT/RANGE:

Mesic to dry meadows, grassy slopes, forest margins and open forests in the steppe and montane to subalpine zones; infrequent in BC east of the Coast-Cascade Mountains, absent in NW BC; E to MB and S to TX, NM, AZ, CA and MX.

DESCRIPTION:

General: Perennial grass from fibrous roots; stems smooth or the nodes commonly more or less short-hairy, 30-100 cm tall.

Leaves: Sheaths usually open for 1-2 cm, smooth or sometimes sparsely soft-hairy; blades mostly basal, 3-5 mm wide, stiff, flat or slightly in-rolled, smooth to sometimes soft-hairy; ear-shaped lobes lacking at the leaf-bases; ligules slightly jagged, 0.5-1.5 (2) mm long.

Flowers: Inflorescence a loose panicle, 7-10 (20) cm long, the branches slender, usually drooping, bearing solitary or paired spikelets; spikelets (5-) 7- to 11-flowered, slightly compressed, 12-25 mm long; glumes mostly more or less short-hairy, the lower ones (1) 3-nerved, 5-8 mm long, the upper ones (3) 5-nerved, 1-3 mm longer; lemmas densly hairy over the entire surface, rounded on the back, 10-13 mm long, the tips rounded, only shallowly if at all bidentate, awned, the awns 1.5-3 (4) mm long; anthers exserted, 2-3 mm long.

Notes: Although Pavlick (1995) treated *Bromus porteri* as a good species most taxonomists (Hitchcock and Chase [1951], Hitchcock [1969], Holmgren and Holmgren [1977], Wilken and Painter [1993]) have merged this minor variant with *B. anomalus*.

***Bromus briziformis* Fisch. & C. A. Mey.**

rattlesnake grass; rattlesnake chess

HABITAT/RANGE:

Dry meadows, roadsides and waste places; rare in SE BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems densely hairy at the bases, 20-60 cm tall.

Leaves: Sheaths usually open for 1-2 cm, densely soft-hairy; blades 2-5 mm wide, flat or slightly in-rolled, soft-hairy to short-hairy; ear-shaped lobes lacking at the leaf-bases; ligules hairy, eroded, 0.5-1.5 mm long.

Flowers: Inflorescence a panicle, 4-12 cm long, with the branches and flowers more or less all to one side of the axis, the branches slender, lax, usually curved to reflexed, mostly bearing solitary spikelets; spikelets 9- to 15-flowered, compressed, cylindrical to egg-shaped, smooth, 15-30 mm long, 8-12 mm wide; florets mostly small, closed, self-fertilized; glumes lanceolate, the lower ones 3- to 5-nerved, 4-6 mm long, the upper ones (5-) 7- to 9-nerved, 7-9 mm long; lemmas inflated, 9-11 mm long, 2.8-4 mm wide, rounded at the tips, unawned, or with awn tips scarcely over 1 mm long; paleas 1-3 mm shorter than the lemmas; anthers, rarely exserted, about 0.8 mm long.

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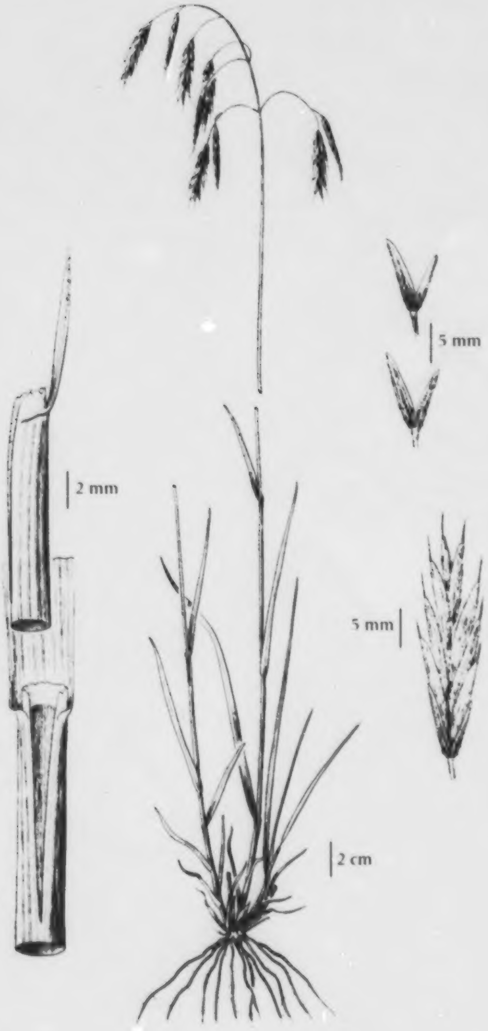
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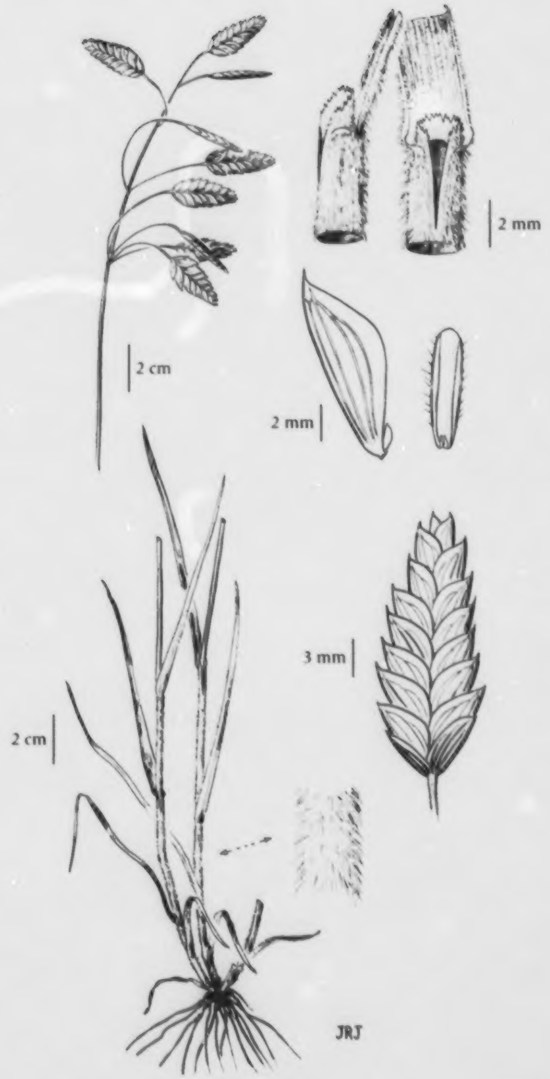
Bromus anomalus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Bromus briziformis

***Bromus carinatus* Hook. & Arn.** (*B. breviaristatus* [Hook.] Thurb., *B. carinatus* vars. *linearis* Shear and *marginatus* [Nees] A.S. Hitchc., *B. hookerianus* Thurb., *B. marginatus* Nees, *B. sitchensis* var. *marginatus* [Nees] Boivin)

California brome

HABITAT/RANGE:

Moist to dry slopes, meadows and open forests in all but the alpine zone; common in S BC, less frequent northward; introduced in AK and YT, E to ON and S to ME, NY, IL, NE, NM, AZ, CA and MX.

DESCRIPTION:

General: Annual or biennial (sometimes perennial) grass from fibrous roots, often flowering in the first season; stems smooth to hairy, 30-100 (130) cm tall.

Leaves: Sheaths closed to near the tops, sometimes smooth but usually soft-hairy at least at the throats and often copiously soft-hairy to greyish short-hairy; blades (2) 3-12 (15) mm wide, flat to somewhat inrolled, smooth to rough or soft-hairy; ear-shaped lobes at the leaf-bases barely 0.5 mm long; ligules smooth to soft-hairy or jagged, 1-3 (6) mm long.

Flowers: Inflorescence a somewhat narrow panicle, (5) 10-25 (30) cm long, the branches erect or ascending, less commonly spreading to reflexed; spikelets (4-) 5- to 10- (12-) flowered, strongly compressed, (1.5) 2-3 (4.5) cm long; florets mostly small, closed, self-fertilized; glumes lanceolate, keeled, the lower ones usually 3-nerved, 5-9 mm long, the upper ones (5) 7-nerved, up to nearly 2 times as long as the lower ones; lemmas smooth to rough short-hairy or strongly hairy, keeled, 10-13 mm long, shallowly bidentate at the tips, awned, the awns straight, 3-15 mm long; anthers 3, included within the lemmas to partially or completely exserted, 1-4 (5) mm long.

Notes: This is an extremely variable species consisting of numerous phases with mainly sympatric ranges. Two phases, var. *linearis* (with copiously soft-hairy sheaths and blades) and *B. marginatus* (with shorter awns), are sometimes given formal recognition. Hitchcock (1969) recognizes var. *linearis* and Hitchcock and Chase (1951) and Pavlick (1995) recognize *B. marginatus*, but there is no compelling evidence that they are taxonomically different. I have followed the treatments by Hitchcock (1969), Welsh (1974), Holmgren and Holmgren (1977) and Wilken and Painter (1993), which submerge *B. marginatus* within *B. carinatus*.

***Bromus ciliatus* L.** (*B. canadensis* Michx., *B. richardsonii* Link)

fringed brome

HABITAT/RANGE:

Wet streambanks and lake margins to mesic meadows and open forests in the montane zone; frequent in BC in and E of the Coast-Cascade Mountains; N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, NE, TX, NM, AZ and CA.

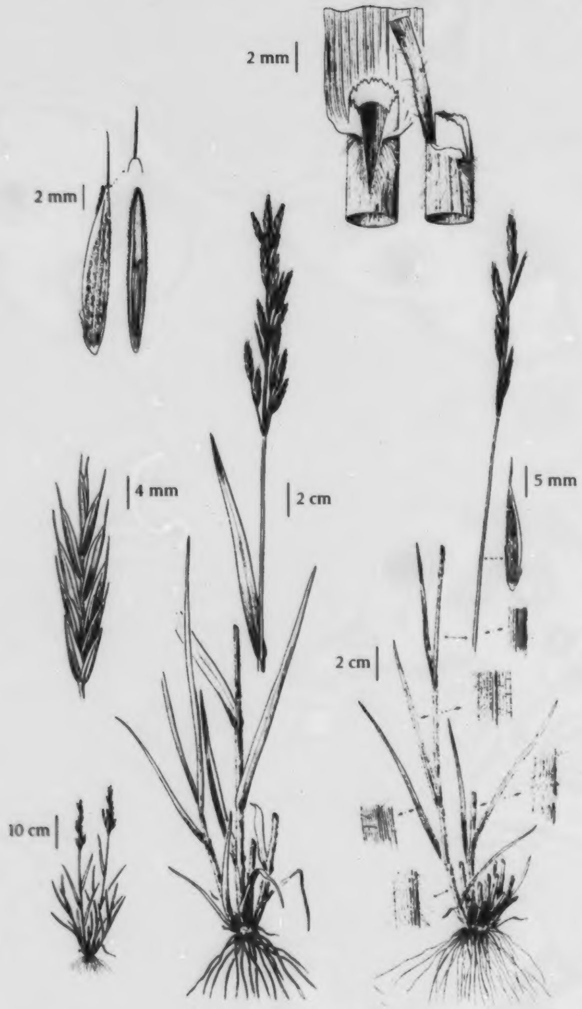
DESCRIPTION:

General: Perennial grass from fibrous roots; stems usually hairy at the nodes but sometimes smooth, 50-100 cm tall.

Leaves: Sheaths usually open for 1-2 cm, smooth (or the throats fringed with long, fine hairs) to thickly soft-hairy; blades 5-10 (15) mm wide, lax, flat, smooth to soft-hairy on the upper surfaces and sometimes the lower ones; ear-shaped lobes lacking at the leaf-bases; ligules minutely jagged and fringed with fine hairs, 0.5-1 (1.5) mm long.

Flowers: Inflorescence a loose, nodding panicle, 7-13 cm long, the branches slender, recurved to drooping; spikelets (5-) 7- to 9-flowered, slightly compressed, 15-23 mm long; glumes mostly short-hairy, the lower ones narrow, 1-nerved, the nerves on the sides sometimes very faint, 5-7 mm long, the upper ones 3-nerved, rounded to cut off at the ends, 6-8 mm long; lemmas stiff-hairy along the margins and usually on the lower portions of the back, smooth at the tips, rounded on the back, 8-11 (13) mm long, shallowly if at all bidentate, awned, the awns straight, 2-4 (5) mm long; rachillas usually visible; anthers partially to completely exserted, 1.5-2 mm long.

Notes: *Bromus ciliatus* is a variable species with some plants having either shorter anthers or differences in hairiness. The phase, *B. richardsonii*, recognized by Welsh (1974) and Pavlick (1995) has so many overlapping characters with *B. ciliatus* that its recognition appears meaningless, even at a subspecific level. I have followed the treatments by Hitchcock and Chase (1951), Hitchcock (1969), Holmgren and Holmgren (1977) and Wilken and Painter (1993) which submerge *B. richardsonii* within *B. ciliatus*.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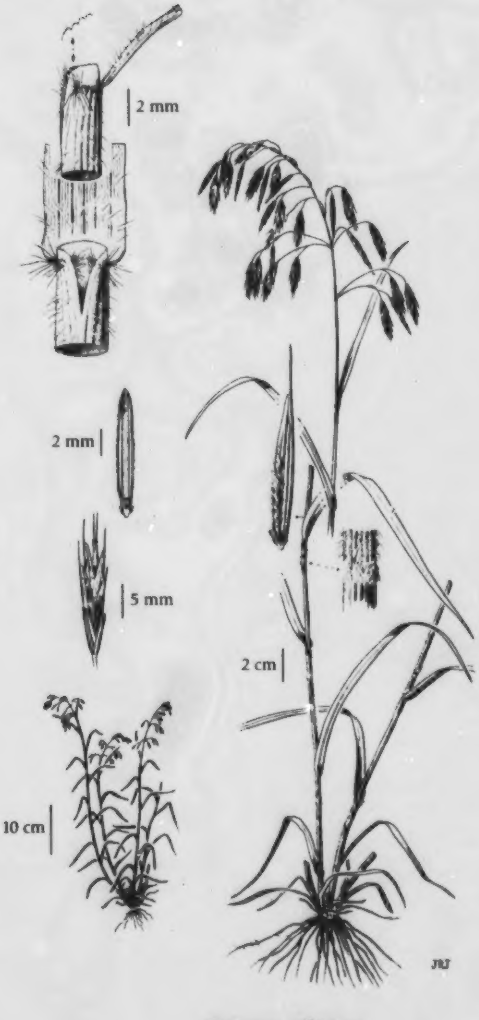
Bromus carinatus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Bromus ciliatus

Bromus commutatus **Schrad.**

meadow brome

HABITAT/RANGE:

Mesic to dry disturbed sites, meadows and open forests in the lowland, steppe and montane zones; infrequent in S BC; introduced from Europe.

DESCRIPTION:

General: Annual grass from fibrous roots; stems erect, usually more or less short-hairy at the nodes and just below, 20-90 (120) cm tall.

Leaves: Sheaths usually open for 1-2 cm, densely soft-hairy, the hairs spreading to slightly angled backwards; blades 2-5 (9) mm wide, flat, hairy; ear-shaped lobes lacking at the leaf-bases; ligules usually hairy, sometimes smooth, jagged and usually more or less fringed with fine hairs, 0.5-1.5 (3) mm long.

Flowers: Inflorescence a loose panicle, mostly 7-15 (20) cm long, the branches ascending to stiffly spreading but rarely wavy; spikelets 5- to 9- (11-) flowered, flattened, lanceolate, smooth or rough short-hairy, 13-20 mm long, the stalks mostly longer than the spikelets; lower glumes lanceolate, (3) 5-nerved, 5-7 mm long, the upper ones lanceolate, (5-) 7- (9-) nerved, 6-9 mm long; lemmas rough with faint nerves, somewhat compressed from top to bottom, (8) 9-10 (11) mm long, rounded at the tips, bidentate, awned, the awns straight to somewhat abruptly bent, 4-10 mm long; paleas 1-2 mm shorter than the lemmas; anthers mostly included in the lemmas, 1-1.5 (2) mm long.

Bromus hordeaceus **L.** (*B. mollis* L. = ssp. *hordeaceus*; *B. thominei* Hardham *ex* Nyman = ssp. *thominei*)

soft brome; soft chess

HABITAT/RANGE:

Dry to mesic fields, roadsides, disturbed sites, open forests, lakeshores and dry salt marshes in the lowland, steppe and montane zones; frequent (ssp. *hordeaceus*) or infrequent (ssp. *thominei*) in SW and SC BC, rare on Queen Charlotte Islands; introduced from Europe.

DESCRIPTION:

General: Annual or biennial grass from fibrous roots; stems smooth or soft-hairy, (10) 20-70 cm tall.

Leaves: Lower sheaths densely soft-hairy (the hairs angled downward) to woolly, the upper ones hairy to smooth; blades mostly 1.5-4 mm wide, flat; ear-shaped lobes lacking at the leaf-bases; ligules usually hairy, sometimes smooth, finely jagged with fine hairs, 0.5-1 (1.5) mm long.

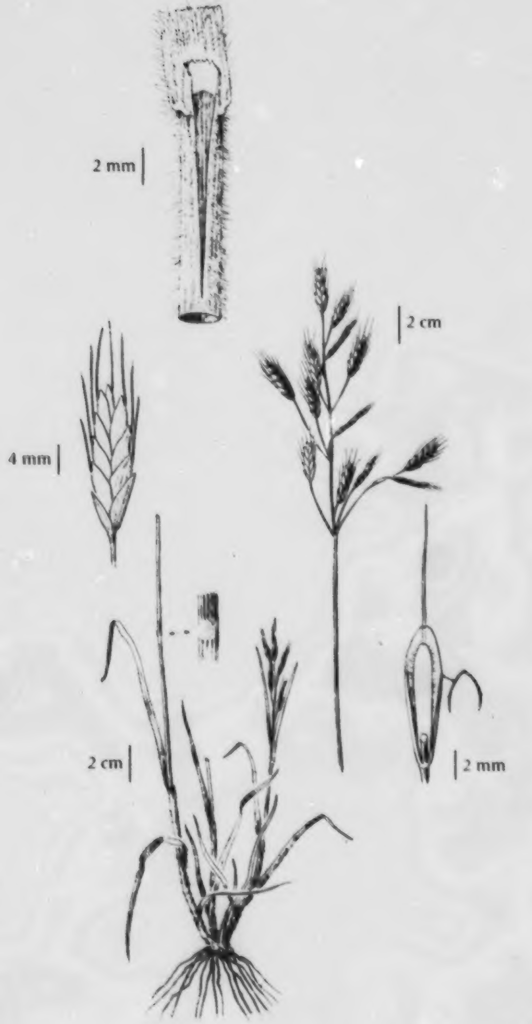
Flowers: Inflorescence an erect, narrow, crowded panicle, soft-hairy to smooth, 3-10 cm long; spikelets 5- to 7- (9-) flowered, slightly compressed, 10-20 mm long; florets mostly small, closed, self-fertilizing; spikelet stalks usually shorter than the spikelets; lower glumes lanceolate, 3- to 5- nerved, 4.5-9 mm long, the upper ones egg-shaped to lanceolate, 5- to 7-nerved, 6-9 mm long; lemmas papery with prominent nerves, somewhat compressed from top to bottom, 6.5-11 mm long, rounded at the tips, bidentate, awned, the awns straight, 6-10 mm long; paleas from nearly equal to the lemmas to 1-1.5 (rarely 2) mm shorter; anthers (0.5) 1.5-2 mm long, but sometimes 2.5-3 mm long and exserted.

Notes: Two subspecies are recognized in BC:

1. Lemmas 6.5-7.5 mm long; lower and upper glumes 4.5-6 mm and 6-6.6 mm long, respectively .... ssp. *thominei* (Hardham *ex* Nyman) Braun-Blanquet

1. Lemmas 8-11 mm long; lower and upper glumes (6) 7-9 mm and (7) 8-9 mm, respectively .... ssp. *hordeaceus*

The hybrid *B. hordeaceus* ssp. *hordeaceus* x *B. lepidus* Holmberg (*B. x pseudothominei* P.M. Sm.) noted by Pavlick (1995) appears to be infrequent on S Vancouver Island and elsewhere in S BC and is difficult to distinguish from ssp. *hordeaceus*.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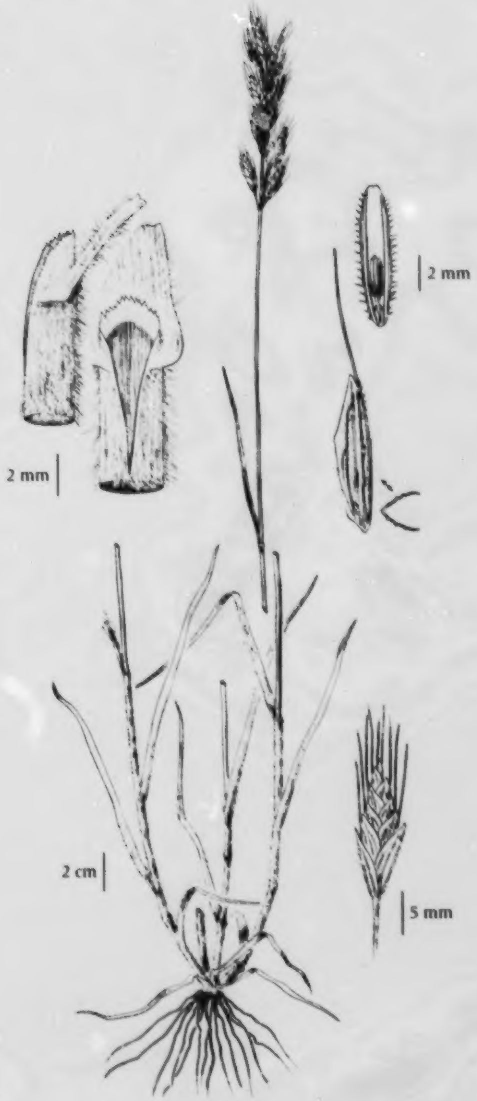
Bromus commutatus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Bromus hordeaceus ssp. *hordeaceus*

***Bromus inermis* Leys.** (*B. arcticus* Shear, *B. pumpellianus* Scribn. and *B. pumpellianus* var. *tweedyi* Scribn. = var. *pumpellianus*)

smooth brome (ssp. *inermis*); **Pumpelly brome** (ssp. *pumpellianus*)

HABITAT/RANGE:

Moist to dry disturbed sites, fields, grassy slopes, meadows and forest edges in all but the alpine zone; ssp. *inermis* – infrequent in C, SC and SE BC, rare northward and westward; ssp. *pumpellianus* – frequent in BC east of the Coast-Cascade Mountains; ssp. *inermis* – introduced from Eurasia; ssp. *pumpellianus* – N to AK, YT and NT, E to AB and ON and S to CO.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems smooth to hairy, 20-120 cm tall.

Leaves: Sheaths smooth to stiff-hairy or soft-hairy; blades 3-10 mm wide, flat, smooth to soft-hairy or stiff-hairy; ear-shaped lobes at the bases of at least some of the leaves up to 1 mm long; ligules minutely jagged or more or less fringed with fine hairs, 0.5-2.5 mm long.

Flowers: Inflorescence a narrow panicle, (5) 7-20 (27) cm long, the branches ascending to erect; spikelets 5- to 13-flowered, often strongly purplish-tinged, narrow, tapered from near the base, nearly circular in cross-section to somewhat compressed, 1.5-3 (5) cm long; glumes lanceolate, narrowly to broadly translucent-margined, the lower ones usually 1- (rarely 3-) nerved, 4-6 (8) mm long, the upper ones (3) 5-nerved, mostly smooth to strongly hairy, 6-10 mm long; lemmas smooth to hairy or rough, rounded on the backs, 10-13 mm long, the tips blunt, only shallowly bidentate, unawned and merely abruptly pointed or with awns 1-2 (4) mm long; paleas nearly equal to the lemmas; anthers 3, exserted, 4-6 mm long.

Notes: Two subspecies occur in BC. Numerous other variants have been recognized but all are based on minor morphological differences. The two subspecies hybridize frequently thus they do not merit specific status:

1. Nodes rarely hairy; lemmas smooth or rough on the margins, unawned or awned, the awns 0.5-1 (3) mm long; glumes, at least the lower, tapered from the bases .... ssp. *inermis*

1. Nodes hairy; lemmas hairy, awned, the awns (1) 2-3 (6) mm long; glumes broadened above the bases .... ssp. *pumpellianus* (Scribn.) Wagnon

***Bromus japonicus* Thunb.**

Japanese brome

HABITAT/RANGE:

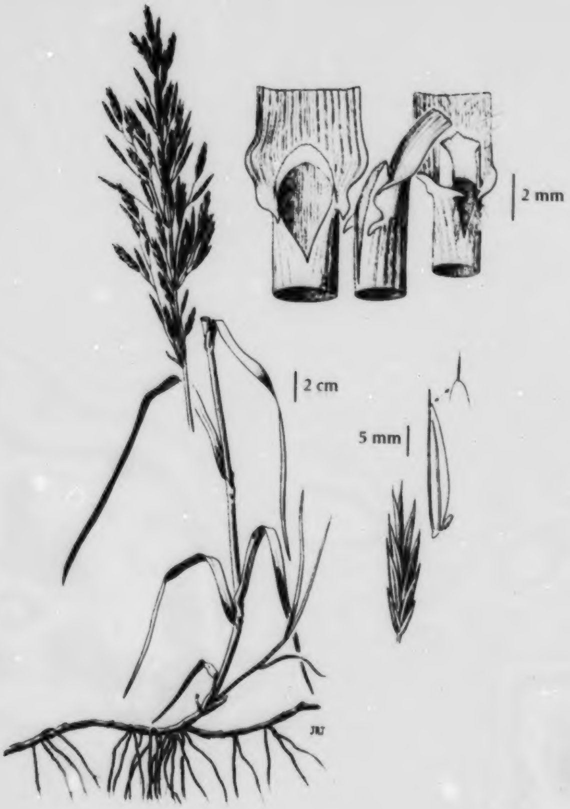
Dry fields and waste places in the steppe zone; infrequent in SC and SE BC; introduced from Eurasia.

DESCRIPTION:

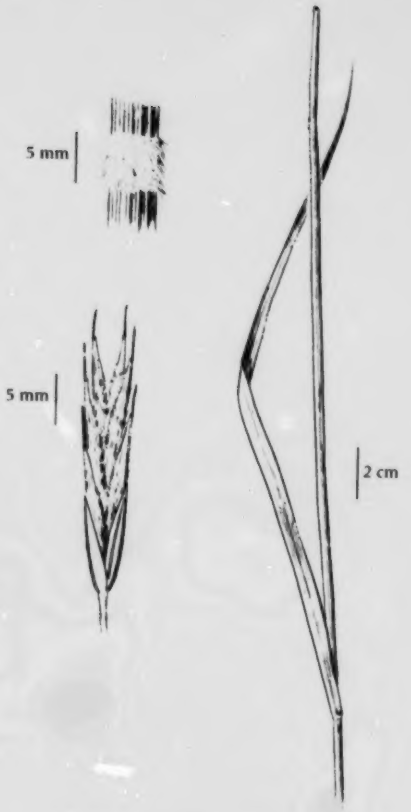
General: Annual grass from fibrous roots; stems 20-50 (70) cm tall.

Leaves: Sheaths densely hairy, the hairs long and angled downwards (at least the lower ones); blades 1.5-3 (4) mm wide, flat, usually soft-hairy; ear-shaped lobes lacking at the leaf-bases; ligules hairy, jagged with fine hairs, 0.5-1.5 mm long.

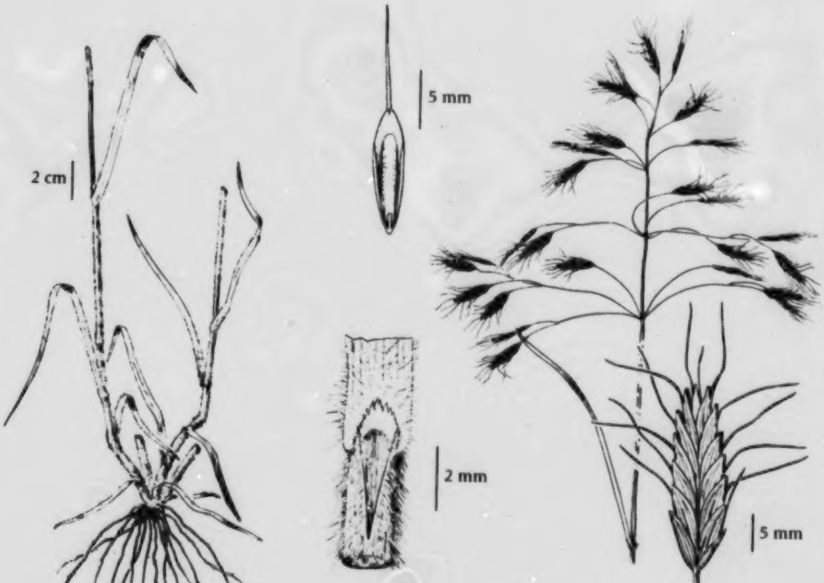
Flowers: Inflorescence an open, diffuse panicle, 7-15 (rarely 20) cm long, the branches slender, spreading to drooping and usually more or less wavy; spikelets 7- to 12-flowered, slightly compressed, smooth or more or less rough, 2-4 cm long, the stalks mostly longer than the spikelets; florets mostly small, closed, self-fertilizing; lower glumes lanceolate, 3-nerved, (3.5) 4-6 mm long, the upper ones lanceolate, 5-nerved, 5.5-8 mm long; lemmas somewhat leathery, broadly lanceolate, nearly circular in cross-section, tapered, rough, faintly 9-nerved, somewhat compressed, rounded on the backs, 8-10 mm long, up to 4 mm wide, the tips blunt and rounded and merely shallowly notched but readily splitting to the awns, the awns inserted 1-2.5 mm below the tips of the lemmas, usually somewhat twisted and abruptly bent at maturity, broadly spreading, flattened at the bases, 8-12 (15) mm long; paleas 1.5-3 (4) mm shorter than the lemmas; anthers included within the lemmas, about 1 mm long.



Bromus inermis ssp. inermis



Bromus inermis ssp. pumpellianus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Bromus japonicus

***Bromus pacificus* Shear**

Pacific brome

HABITAT/RANGE:

Moist to mesic coastal meadows, beaches, thickets and open forests in the lowland zone; infrequent in coastal BC; N to SW AK and S to OR.

DESCRIPTION:

General: Perennial grass from fibrous roots, but sometimes rooting at the lower nodes; stems smooth to hairy at the nodes, 60-150 (200) cm tall.

Leaves: Sheaths usually open for 1-2 cm, strongly soft-hairy to smooth with long fine hairs at the throats; blades (4) 6-10 (15) mm wide, flat, commonly sparsely soft-hairy at least on the upper surfaces, but sometimes smooth; ear-shaped lobes lacking at the leaf-bases; ligules strongly hairy, jagged, brown, 2-5 mm long.

Flowers: Inflorescence an open, nodding panicle, 15-30 cm long, the branches elongate, spreading to drooping, usually bearing spikelets only towards the tips; spikelets loosely (5-) 7- to 11-flowered, somewhat compressed, 20-30 (35) mm long; florets small, closed, self-fertilizing; glumes lanceolate, usually short-hairy, long-pointed, the lower ones 1 (3)-nerved, 6-9 mm long, the upper ones 3- (5- to 7-) nerved, 9-10 mm long; lemmas rough to short-hairy evenly over the entire surface, rounded to slightly keeled on the backs, 11-14 mm long, the tips long-pointed, shallowly bidentate, awned, the awns 4-10 mm long; anthers exserted, 1-3 (4) mm long.

***Bromus racemosus* L.**

smooth brome

HABITAT/RANGE:

Mesic to dry disturbed sites and waste places in the lowland, steppe and montane zones; rare in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems erect or ascending, 20-110 cm tall.

Leaves: Lower sheaths densely soft-hairy, the hairs often directed downwards, the upper sheaths smooth to hairy; blades soft-hairy on both sides, 1.5-4 mm wide, flat; ear-shaped lobes lacking at the leaf-bases; ligules smooth or hairy, jagged, 1-2 mm long.

Flowers: Inflorescence an erect, narrow panicle, 4-16 cm long, the branches slender, ascending; spikelets 5- to 7- (9-) flowered, slightly compressed, 10-20 mm long; florets mostly small, closed, self-fertilizing; spikelet stalks usually shorter than the spikelets; glumes lanceolate, smooth to rough, prominently nerved, the lower ones (3) 5-nerved, 4-6 mm long, the upper ones 7-nerved, 4-7 mm long; lemmas rough, distinctly but not prominently 7- (9-) nerved, smooth on the backs, rough on the margins, somewhat compressed from top to bottom, 6.5-8 mm long, the tips rounded, bidentate, awned, the awns 5-9 mm long; anthers 1.5-3 mm long.

***Bromus rigidus* Roth (*B. maximus* Desf.)**

rip-gut brome; rip-gut

HABITAT/RANGE:

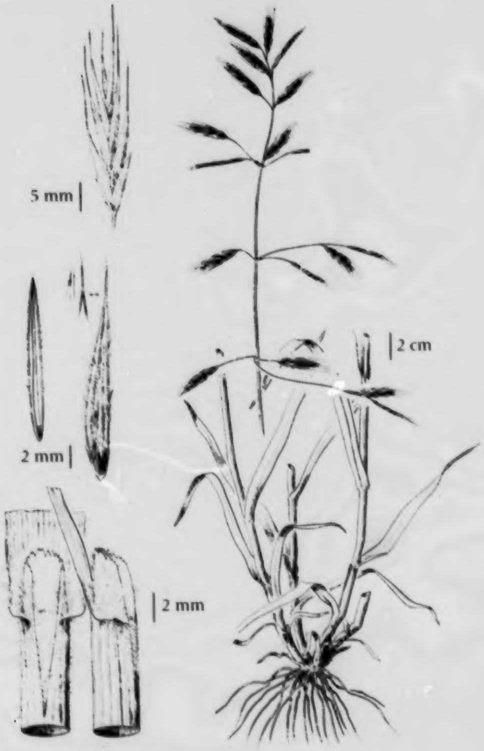
Dry roadsides and waste places in the lowland zone; infrequent on S Vancouver Island and the Gulf Islands, rare in the Vancouver area; introduced from Europe.

DESCRIPTION:

General: Annual grass from fibrous roots; stems usually smooth or hairy only above, 40-80 (100) cm tall.

Leaves: Sheaths usually spreading soft-hairy or the hairs angled downwards; blades 3-10 (12) mm wide, flat, soft-hairy on both surfaces; ear-shaped lobes lacking at the leaf-bases; ligules somewhat jagged, (2) 3-5 (6) mm long.

Flowers: Inflorescence a panicle, 10-15 cm long, the branches elongate, nearly erect to spreading, bearing mostly 1 or 2 spikelets; spikelets 5- to 7- (8-) flowered, widest above the midlength, 2.5-4 cm long; florets closed, self-fertilizing; glumes narrowly lanceolate, smooth, the lower ones 1- (rarely 3-) nerved, 13-20 (22) mm long, the upper ones 3-nerved, 25-33 mm long; lemmas rough to short-hairy, 22-30 mm long, long-pointed, bidentate, the teeth slender, 3-4 mm long, awned, the awns straight, 35-60 mm long; anthers (2) 3, mostly included, 1-1.5 mm long, but sometimes exserted and 3-3.5 mm long.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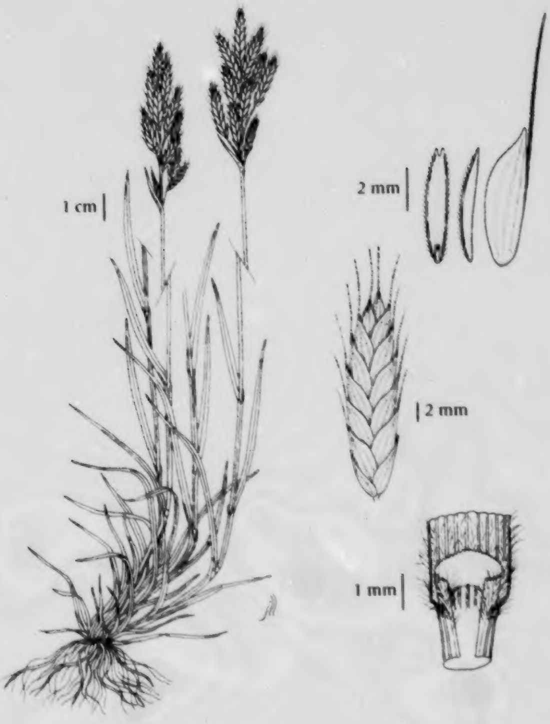
2 mm

Bromus pacificus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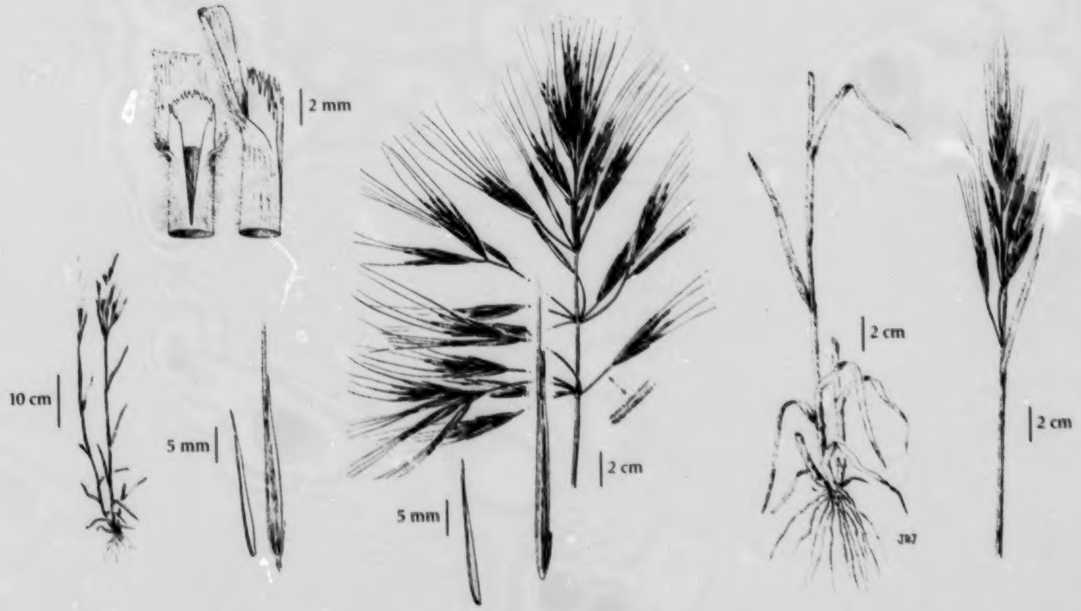
2 mm
2 mm
1 mm

Bromus racemosus


2 mm
10 cm
5 mm
5 mm
2 cm
2 cm
2 cm
JRJ

Bromus rigidus

Bromus secalinus **L.**

rye brome

HABITAT/RANGE:

Dry roadsides, fields and waste places in the lowland, steppe and montane zones; rare in WC and S BC, known recently only from Hazelton and New Westminster; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems smooth or hairy only at the nodes, 30-80 cm tall.

Leaves: Sheaths usually smooth to finely hairy; blades (2) 3-8 mm wide, flat, usually somewhat soft-hairy (to smooth); ear-shaped lobes lacking at the leaf-bases; ligules smooth or sparsely hairy on the outer surfaces, minutely or coarsely jagged, (2) 1.5-3 mm long.

Flowers: Inflorescence a loose, usually nodding panicle, (5) 7-20 cm long, with all the branches and flowers on 1 side of the axis; spikelets 5- to 9-flowered, strongly compressed, smooth to short-hairy, 10-20 mm long; florets ultimately spreading, exposing the curved rachilla joints; lower glumes lanceolate, 3- to 5-nerved, 4-6 mm long, the upper ones broader, cylindrical or more or less egg-shaped to lanceolate, 5- (7-) nerved, 5-8 mm long; lemmas rough, without prominent nerves, somewhat compressed, (6) 7-9 mm long, the margins usually in-rolled, rounded at the tips, bidentate, awned, the awns about 5 mm long, flattened, in age usually broadly spreading to somewhat zig-zagging, sometimes reduced to 1-2 mm long; paleas about equalling or exceeding the lemmas; anthers about 1 mm long.

Bromus sitchensis **Trin.** (*B. aleutensis* Trin. *ex* Griseb.)

Alaska brome

HABITAT/RANGE:

Moist to mesic meadows, streambanks, beaches, talus slopes, avalanche tracks and open forests in the lowland, montane and subalpine zones; frequent in BC in and west of the Coast-Cascade Mountains, rare in SE BC; N to AK and S to NW OR.

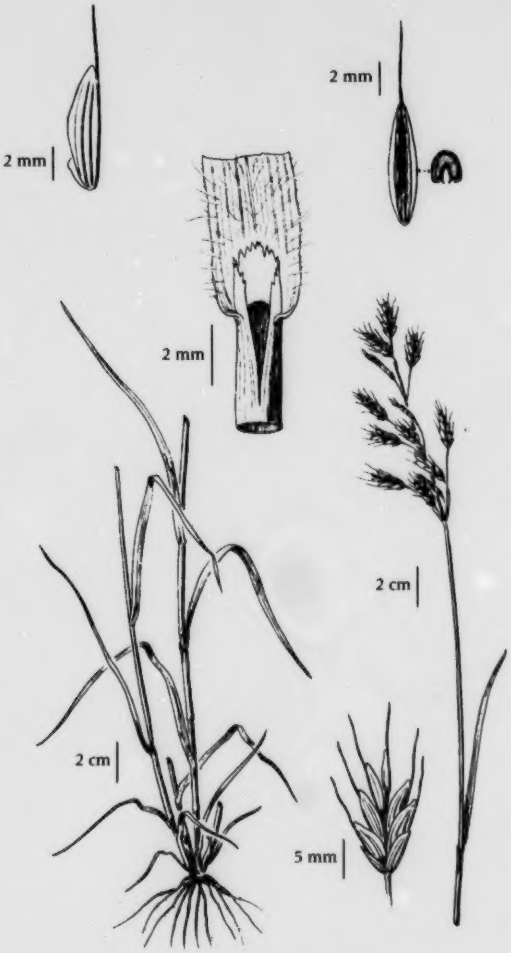
DESCRIPTION:

General: Perennial grass from fibrous roots; stems 50-150 (200) cm tall.

Leaves: Sheaths smooth to soft-hairy; blades (5) 8-15 mm wide, flat, smooth to soft-hairy on the dorsal surfaces at least, thin, the nerves very narrow, scarcely 1/3 as broad as the intervening areas; ear-shaped lobes lacking at the leaf-bases; ligules smooth (to crisp-hairy), jagged, pale, (2) 4-8 mm long.

Flowers: Inflorescence a large panicle, 10-35 cm long, the branches stiffly erect to mostly spreading or drooping, usually bearing only 1 or 2 (3) spikelets near the tips; spikelets closely 4- to 8- (12-) flowered, strongly compressed, tapered from near the base, 2-4 cm long; florets mostly small, closed, self-fertilizing; glumes lanceolate, keeled, the lower ones 3- or 5-nerved, 8-10 mm long, the upper ones, 5- or 7-nerved, 2-3 mm longer; lemmas smooth to more or less short-hairy, keeled on the back, (6) 7-12 mm long, shallowly bidentate, awned, the awns straight or slightly abruptly bent, (5) 7-12 (15) mm long; rachillas completely exposed to often not exposed; paleas about equalling or exceeding the lemmas; anthers (0.5) 1-3 (6) mm long.

Notes: The treatment here follows that of Calder and Taylor (1968) who suggested that *B. aleutensis* was merely a depauperate form of *B. sitchensis*. They can be separated only on minor and overlapping differences in panicle characteristics.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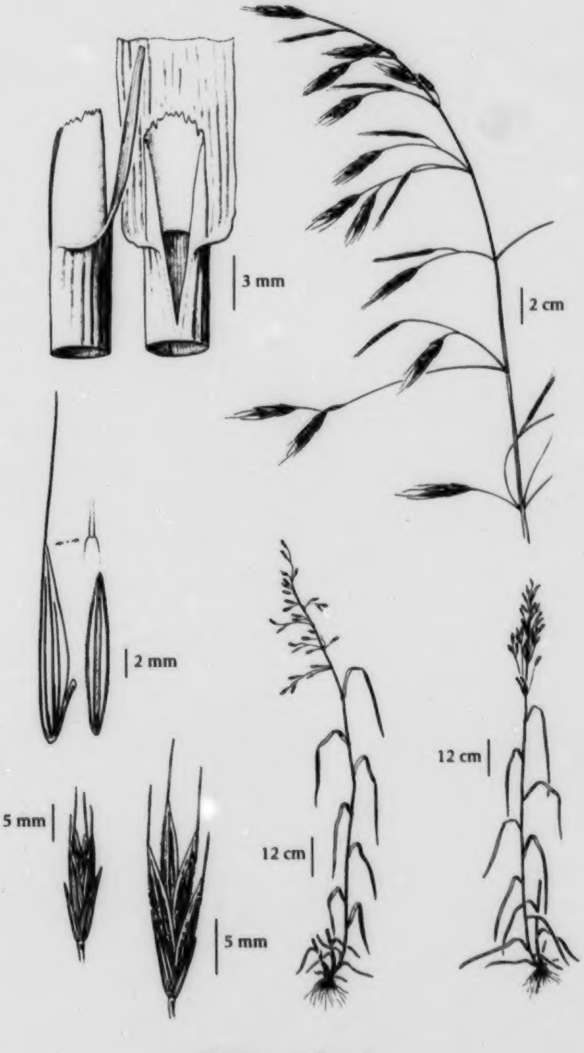
2 cm
2 cm
5 mm

Bromus secalinus


3 mm
2 cm
2 mm
12 cm
5 mm
12 cm
5 mm

Bromus sitchensis

***Bromus squarrosus* L.**

corn brome

HABITAT/RANGE:

Dry to mesic fields, roadsides, disturbed sites and waste places in the steppe and montane zones; rare in WC, SC and SE BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems erect to abruptly bent and ascending, 20-60 cm tall.

Leaves: Lower sheaths densely soft-hairy to woolly, with long intertwined, curly hairs; blades (2) 3-8 mm wide, 5-15 cm long, flat, densely soft-hairy on both sides; ear-shaped lobes lacking at the leaf-bases; ligules more or less fringed with fine hairs, hairy on the back, more or less jagged, 1-1.5 mm long.

Flowers: Inflorescence an open, nodding, racemose or nearly racemose panicle, 7-20 cm long, with all the branches and flowers on 1 side of the axis, the branches equalling or shorter than the spikelets; spikelets 8- to 30-flowered, somewhat compressed, broadly cylindrical or egg-shaped to lanceolate, smooth to short-hairy, 1.5-7 cm long, 7-15 mm wide; glumes smooth to rough, the lower ones 3- to 5- (7-) nerved, 4.5-7 mm long, the upper ones 7-nerved, 6-9 mm long; lemmas 7- to 9-nerved, firm-papery, smooth or more or less rough, somewhat compressed, with broadly translucent margins, 8-11 mm long, up to 6-8 mm wide, rounded at the tips, bidentate, awned, the awns flattened, sometimes twisted at the base, widely spreading at maturity, about 10 mm long, arising 1.5 mm or more below the lemma tips; anthers 1-1.3 mm long.

***Bromus sterilis* L.**

barren brome

HABITAT/RANGE:

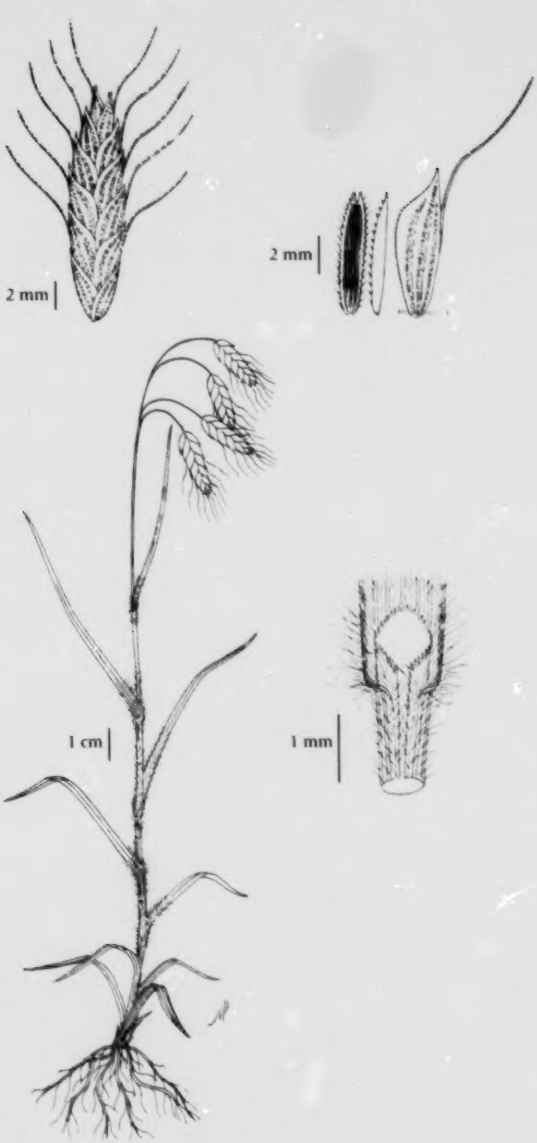
Dry to mesic roadsides, waste places, meadows, rock outcrops and rocky forest openings in the lowland, steppe and montane zones; common on S Vancouver Island and Gulf Islands, infrequent in SC and SE BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems (40) 50-100 cm tall, smooth, erect or abruptly bent near the base.

Leaves: Sheaths soft-hairy; blades 2-3 (4) mm wide, flat, smooth to soft-hairy on the dorsal surfaces at least, thin, the nerves very narrow, scarcely 1/3 as broad as the intervening areas; ear-shaped lobes lacking at the leaf-bases; ligules jagged, 2-3 mm long.

Flowers: Inflorescence an open panicle, (10) 15-20 cm long, the lower branches usually drooping, mostly bearing only 1 or 2 spikelets; spikelets closely (6-) 7- to 9-flowered, broadest above the midlength, smooth to appressed short-hairy, 2.5-3.5 cm long; glumes slender, the lower ones 1-nerved, 6-14 mm long, the upper ones 3-nerved, 10-20 mm long; lemmas narrowly lanceolate, long-pointed, keeled, (16) 18-20 mm long, bidentate, the teeth very slender, 2-2.5 mm long, awned, the awns 15-30 mm long; anthers 1-1.5 mm long.


2 mm
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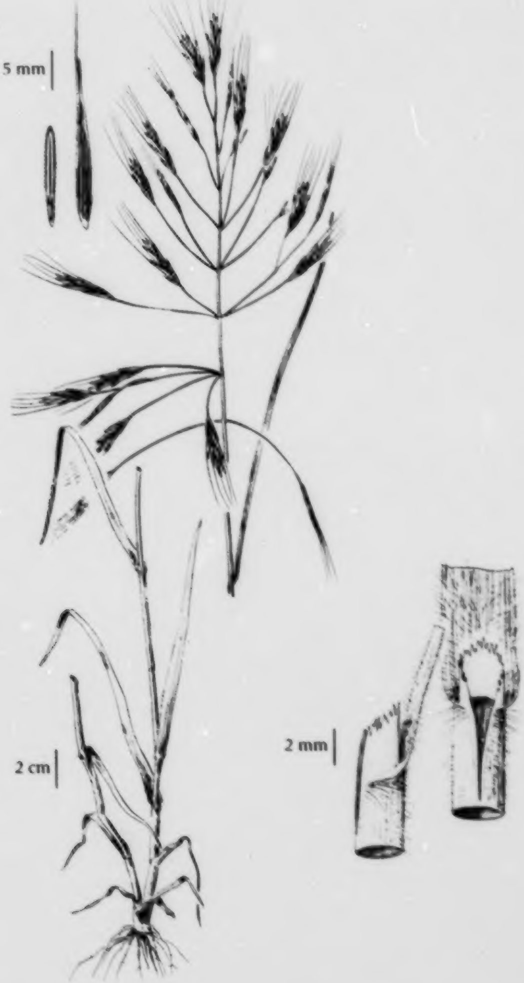
1 mm

Bromus squarrosus



Bromus sterilis

***Bromus tectorum* L.**

cheatgrass; downy brome

HABITAT/RANGE:

Dry to mesic roadsides, disturbed sites, waste places, meadows, grasslands and shrublands in the lowland, steppe and montane zones; common in S BC, rare elsewhere; introduced from Eurasia and N Africa.

DESCRIPTION:

General: Annual grass from fibrous roots; stems more or less densely hairy, the hairs fine, soft, short to moderately long and straight, (10) 20-50 (70) cm tall.

Leaves: Sheaths soft-hairy; blades 2-3 (4) mm wide, flat, hairy, the hairs fine, soft, short to moderately long, straight; ear-shaped lobes lacking at the leaf-bases; ligules jagged, 1.2-3 mm long.

Flowers: Inflorescence a somewhat compact panicle, erect at first then mostly drooping to one side, (3) 6-15 cm long, the branches slender, the lower and longer ones often drooping, bearing usually (3) 4 or more spikelets; spikelets 3- to 6-flowered, slender, broadest above the midlength, smooth, up to 2 cm long; florets mostly small, closed, self-fertilizing; glumes smooth to long-hairy, the lower ones 1-nerved, 4-6 (9) mm long, the upper ones 3-nerved, 7-13 mm long; lemmas smooth to long-hairy, slightly keeled, 9-12 mm long, narrowly sharp- to long-pointed, often purplish when mature, awned, the awns straight to slightly bent, 10-17 mm long, bidentate, the teeth long pointed, 2-3 mm long; anthers 0.5-0.7 mm long, usually included.

***Bromus vulgaris* (Hook.) Shear** (*B. eximius* [Shear] Piper)

Columbia brome

HABITAT/RANGE:

Moist to mesic meadows, thickets, streambanks, rocky slopes and open forests in the lowland and subalpine zones; common on S Vancouver Island and the Gulf Islands, infrequent in S and C BC; E to AB and S to WY, UT, ID and CA.

DESCRIPTION:

General: Perennial grass from fibrous roots, sometimes rooting at the lower nodes; stems usually hairy at the nodes, 60-100 (120) cm tall.

Leaves: Sheaths strongly soft-hairy to smooth, but often with a few long hairs at the throats; blades 5-10 (15) mm wide, flat, lax, smooth to soft-hairy on either or both surfaces; ear-shaped lobes lacking at the leaf-bases; ligules smooth to hairy, finely to coarsely jagged, (2) 3-5 mm long.

Flowers: Inflorescence a somewhat compact panicle, 10-18 (20) cm long, the branches slender, often drooping; spikelets (3-) 5- to 7- (10-) flowered, slightly if at all compressed, (15) 20-28 mm long; glumes smooth or rough on the nerves or keels, the lower ones 1-nerved but sometimes obscurely to plainly 3-nerved, 5-8 mm long, the upper ones 3-nerved (or obscurely 5-nerved), 7-10 mm long; lemmas hairy along the marginal nerves and sometimes over the lower halves but more or less smooth towards the tips, rounded on the backs, 8-13 mm long, shallowly bidentate, awned, the awns (3) 5-10 mm long; anthers 3-5 mm long, exserted.

CALAMAGROSTIS[9]

1. Awns exserted beyond the glume tips, twisted and bent.
    2. Glumes 4-5 mm long; leaf sheaths usually hairy on the collars; awns exserted less than 2 mm beyond the glume tips .... *C. rubescens*
    2. Glumes 4.5-8 mm long; leaf sheaths smooth to somewhat rough; awns exserted 1-4 (5) mm beyond the glume tips.
        3. Leaf blades smooth to rough above the leaf sheaths, smooth on the collars; glumes smooth or rough only on the keels; plants of coastal BC .... *C. sesquiflora*
        3. Leaf blades rough or short-hairy above the leaf sheaths, smooth or minutely rough on the collars; glumes rough; plants of interior BC .... *C. purpurascens*

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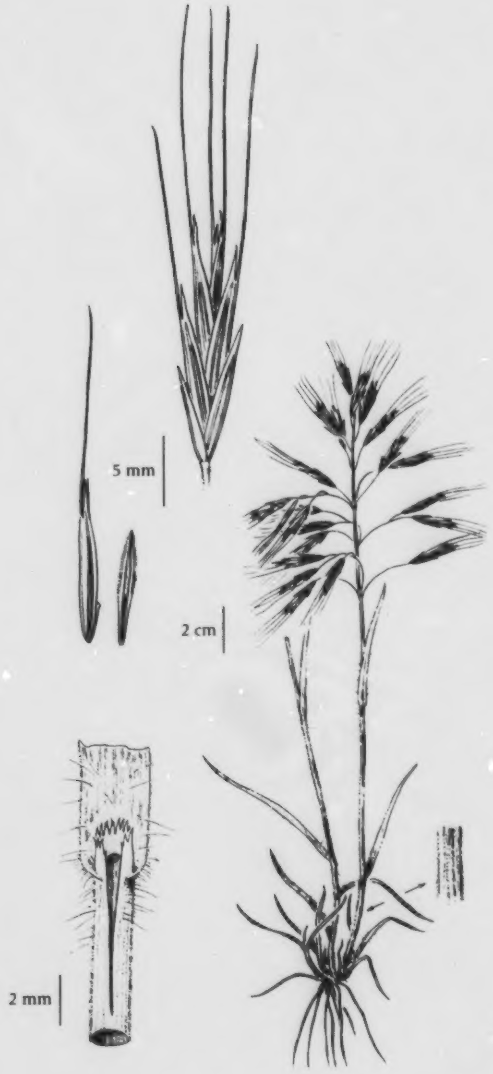
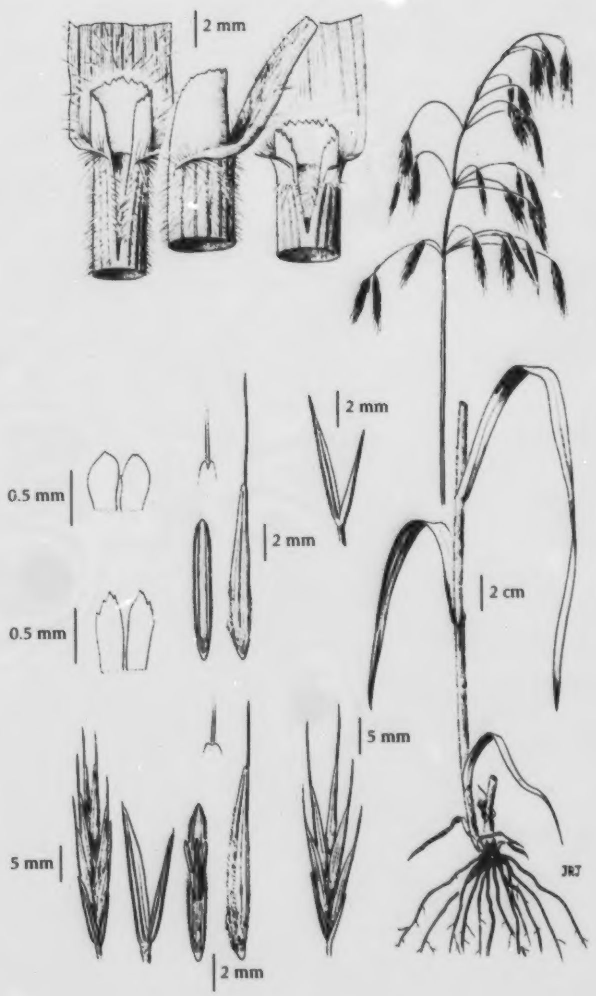
[9] Contributed by C.W. Greene.



Bromus tectorum


2 mm
2 mm
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0.5 mm
2 cm
5 mm
5 mm
2 mm
JRJ

Bromus vulgaris

1. Awns not reaching the glume tips or barely exserted, straight or twisted and bent.

    4. Panicles loose, branches spreading or ascending.

        5. Glumes 5-7 (8) mm long; awns stout, the callus hairs sparse, less than 1/2 the length of the lemmas; robust plants of coastal BC .... *C. nutkaensis*

        5. Glumes 3-5 mm long; awns slender, the callus hairs copious, 1/2 to as long as the lemmas; plants of interior BC, rarely coastal.

            6. Stems 30-90 cm tall, unbranched, with 2 to 3 nodes; panicles 4-12 cm long, with longer branches to 4 cm long; leaf blades rough above, smooth below .... *C. lapponica*

            6. Stems 60-150 cm tall, sometimes branched above, with 3 to 8 nodes; panicles 10-25 cm long, with longer branches 3-8 cm long; leaf blades rough above and below .... *C. canadensis*

    4. Panicles congested, the branches appressed.

        7. Callus hairs mostly 1/2 to as long as the lemmas; awns straight to somewhat twisted and bent; glumes 2-4.5 mm long .... *C. stricta*

        7. Callus hairs mostly less than 1/2 the length of the lemmas; awns slightly to strongly twisted and bent; glumes 4-5 mm long.

            8. Stems 15-50 cm tall; panicles dense, 4-8 cm long, with longer branches to 2 cm long; leaf sheaths smooth on the collars .... *C. montanensis*

            8. Stems 60-100 cm tall; panicles dense to somewhat open, 6-15 cm long, with longer branches 1.5-4 cm long; leaf sheaths with at least some of the collars with tufted hairs .... *C. rubescens*

Calamagrostis canadensis **(Michx.) Beauv.** (*C. canadensis* vars. *acuminata* Vasey *ex* Rydb. & Shear and *robusta* Vasey, *C. pallida* Vasey & Scribn. *ex* Vasey *non* Nutt. *ex* A. Gray, *C. scribneri* Beal = var. *canadensis; C. lactea* Beal, *C. scabra* J. Presl = var. *langsdorfii*)

bluejoint reedgrass

HABITAT/RANGE:

Moist to wet bogs, marshes, meadows, clearings and open forests in the lowland to lower alpine zones; var. *canadensis* – common throughout BC east of the Coast-Cascade Mountains, rare in coastal BC; var. *langsdorfii* – common in N BC east of the Coast-Cascade Mountains, less frequent southward; circumboreal, N to AK, YT, NT, E to NF and S to ME, MA, NY, NC, TN, MO, KS, NM, AZ and CA; Eurasia.

DESCRIPTION:

General: Perennial grass from fibrous roots and rhizomes; stems 60-150 cm tall, smooth, with 3 to 8 nodes, often branching above.

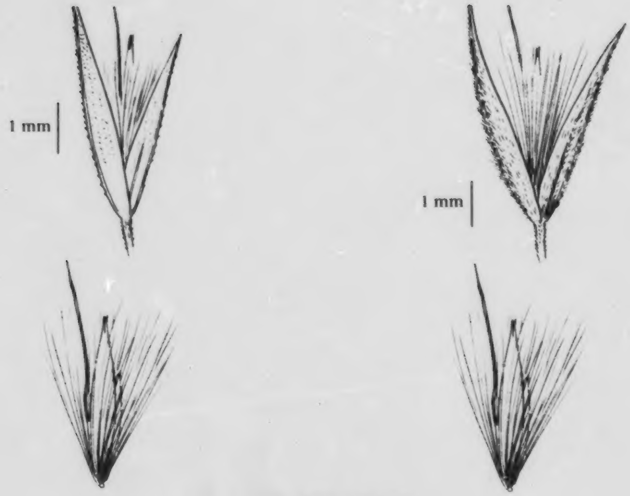
Leaves: Sheath summits smooth to strongly hairy; leaf blades lax, usually flat, rough on both surfaces, often glaucous above, 5-30 cm long, mostly 3-8 mm wide; ligules mostly 3-8 mm long, with jagged margins.

Flowers: Inforescence an open, lax or sometimes narrow panicle 10-25 cm long, the longer branches 3-8 cm long, sparsely- to densely-flowered on the upper 1/2; spikelets 1-flowered; glumes usually purple-tinged, thin, translucent along the margins, sharp- to long-pointed, usually rough, often bristly on the keels; lemmas thin, 2.5-4.5 mm long, with delicate, straight awns attached just below the middle and extending to or just beyond the tips, the callus hairs copious, mostly of uniform length, about as long as the lemmas; paleas thin, 1/2 to almost as long as the lemmas; rachillas short, inconspicuous, sparsely bearded with long hairs.

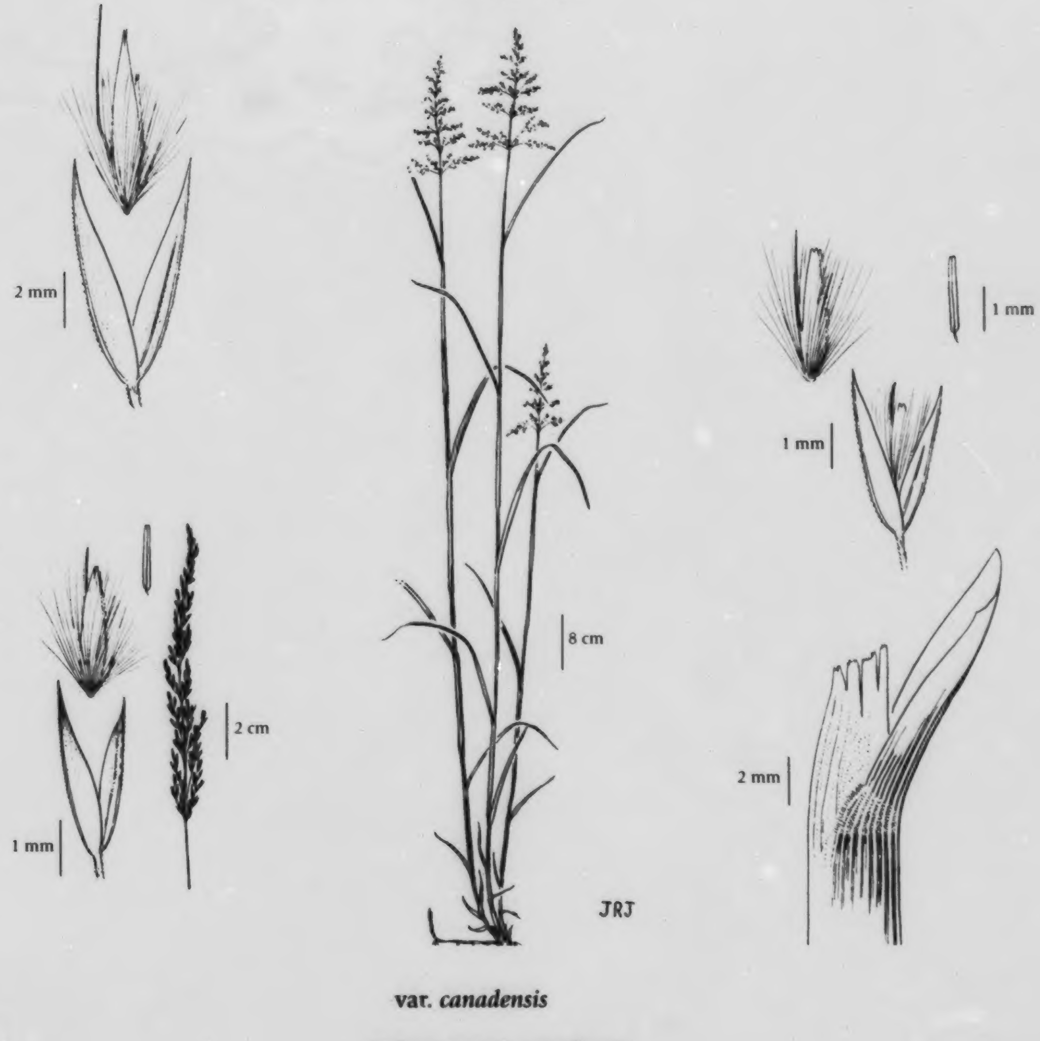
Notes: Two intergrading varieties are recognized in BC and delimitation of each is arbitrary. Variety *langsdorfii* also intergrades with *C. lapponica*. The two varieties may be separated as follows:

1. Glumes 3-4 mm long, inconspicuously rough and thin, the keels lacking bristlelike hairs, translucent on the margins; awns thin, not prominent .... var. *canadensis*

1. Glumes 4-6 mm long, conspicuously rough, the keels with bristlelike hairs, usually not translucent on the margins; awns thick, more prominent .... var. *langsdorfii* (Link) Inman



var. ***langsdorfii***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8 cm
1 mm
2 mm
JRJ

var. ***canadensis***

Calamagrostis canadensis

Calamagrostis lapponica (Wahlenb.) Hartm. (*C. lapponica* var. *nearctica* Pors.)

Lapland reedgrass

HABITAT/RANGE:

Mesic to moist sites in the montane to alpine zones; infrequent in N BC east of the Coast-Cascade Mountains; circumboreal, N to AK, YT and NT and E to NF; Greenland, Eurasia.

DESCRIPTION:

General: Perennial grass from fibrous roots and rhizomes; stems 30-90 cm tall, unbranched, with 2 to 3 nodes.

Leaves: Leaf blades 5-15 cm long, 2-4 mm wide, flat or in-rolled, rough short-hairy above, smooth below; ligules 1.5-4 mm long, entire.

Flowers: Inflorescence a lax panicle 4-12 cm long, its branches up to 4 cm long and appressed to somewhat spreading; spikelets 1-flowered; glumes 4-5.5 mm long, thin, long-pointed, rough, at least on the keels, usually purplish below, often becoming bronze-coloured at the tips; lemmas 3.5-5 mm long, finely rough short-hairy, translucent at the summits, the awns slender, straight to somewhat twisted and bent, reaching the tips of the lemmas, the callus hairs somewhat tufted, of varying length, mostly as long as the lemmas; paleas slightly shorter than the lemmas, thin and translucent; rachillas about 1 mm long, with copious hairs reaching the tips of the lemmas; anthers usually poorly developed and sterile.

Calamagrostis montanensis (Scribn.) Scribn.

plains reedgrass

HABITAT/RANGE:

Dry slopes and open forests in the steppe and montane zones; rare in SE and NE BC; E to MB and S to MN, SD, CO and ID.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots and short rhizomes; stems 15-50 cm tall, rough below the panicles, with 2 nodes per stem.

Leaves: Leaf blades 2-3 (4) mm wide, seldom reaching the panicle, flattened to in-rolled; ligules 2-3 mm long.

Flowers: Inflorescence a congested panicle 4-8 cm long, its branches to 2 cm long; spikelets 1-flowered; glumes smooth to stiff-hairy, stiff-hairy on the keels, 4-5 mm long; lemmas 3-4 mm long, minutely rough, finely 4-toothed at the tips, awned, the awns stout, attached just below the middle of the lemmas, slightly twisted and bent, reaching the tips of the lemmas, the callus hairs up to 2 mm long; rachillas about 1 mm long, densely bearded with hairs to 2 mm long.

Calamagrostis nutkaensis (J. Presl) J. Presl _ex_ Steud.

Pacific reedgrass

HABITAT/RANGE:

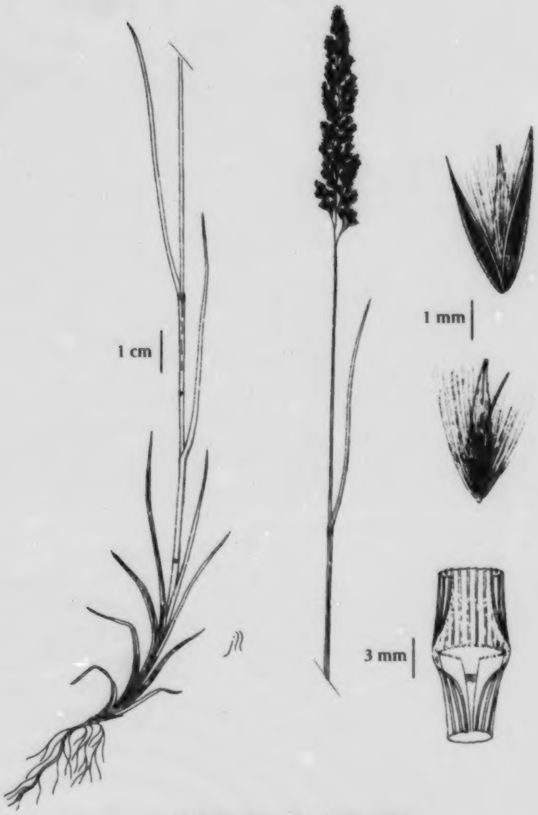
Wet to dry meadows, bogs, beaches, sand dunes and open forests in the lowland to subalpine zones; frequent in coastal BC; N to AK and S to CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots and rhizomes; stems stout, 60-100 cm or more tall, with 2 to 3 nodes.

Leaves: Sheaths loosely open at the stem base; leaf blades flat to folded, 4-7 (10) mm wide, to 28 cm long; ligules 1-4 mm long, often hidden by the expanded collars.

Flowers Inflorescence a somewhat loose but narrow and erect panicle, 12-30 cm long, its branches 5-7 (10) cm long, bearing spikelets on the upper 1/2; spikelets 1-flowered; glumes 5-7 (8) mm long, long-pointed, smooth to rough, especially on the keels; lemmas 4-5 mm long; minutely 4-toothed at the tips, awned, awn straight or weakly twisted and bent, attached near the middle of the lemmas, reaching to about the lemma tips, the callus hairs of unequal lengths, 1.5-2 mm long; rachillas 0.5-1 mm long, with scant hairs to 1 mm long; anthers 3 mm long.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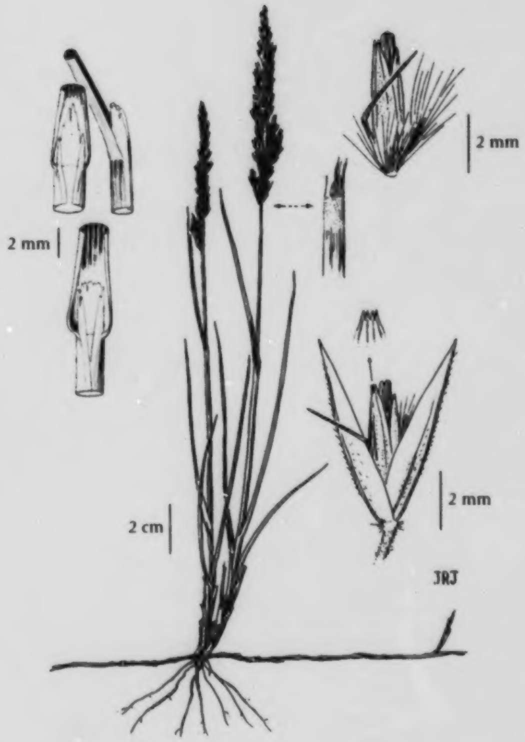
Calamagrostis lapponica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2 cm
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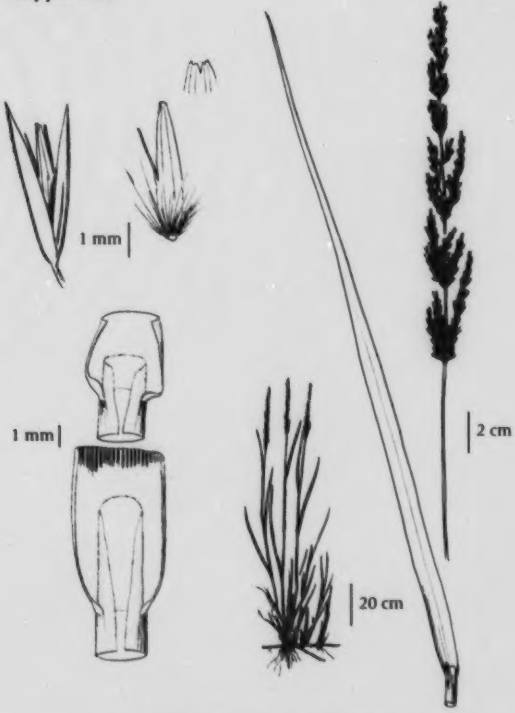
Calamagrostis montanensis


1 mm
1 mm
2 cm
20 cm

Calamagrostis nutkaensis

Calamagrostis purpurascens **R. Br. var.** ***purpurascens*** (*C. purpurascens* var. *laricina* Louis-Marie)
purple reedgrass

HABITAT/RANGE:

Mesic to dry, rocky ridges, sandy slopes, shrublands and open forests in the montane to alpine zones; common in BC east of the Coast-Cascade Mountains; amphiberingian, N to AK, YT and NT, E to PQ and Labr. and S to MN, SD, NM, UT, NV and CA; Greenland, E Asia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots and short rhizomes; stems stiff, unbranched, 10-80 cm tall, with 2 to 3 nodes.

Leaves: Sheath summits smooth to hairy; leaf blades stiff, flat, 5-30 cm long, 2-5 mm wide, often rough or short-hairy above the leaf sheaths, smooth to rough on the collars; ligules 2-6 mm long.

Flowers: Inflorescence a stiff, spikelike panicle 4-15 cm long, its branches up to 3.5 cm long; spikelets 1-flowered; glumes long-pointed, 4.5-8 mm long, rough, keeled; lemmas nearly as long as the glumes, minutely 4-toothed at the tips, awned, the awns stout, twisted and attached near the base, extending well beyond the glume tips, the callus hairs of unequal length, up to 1/3 as long as the florets; rachillas 1-2 mm long, with hairs 1/2 to as long as the florets.

Calamagrostis rubescens **Buckl.** (*C. luxurians* Rydb.)
pinegrass

HABITAT/RANGE:

Mesic to dry meadows, rocky slopes and open forests in the steppe to subalpine zones; common in S BC east of the Coast-Cascade Mountains; E to AB and S to CO, UT, NV and CA.

DESCRIPTION:

General: Perennial grass from fibrous roots and conspicuous rhizomes; stems unbranched, 60-100 cm tall, with 2 to 3 nodes.

Leaves: Sheaths smooth to occasionally hairy above, the sheath summits usually with conspicuous tufted hairs; ligules 3-5 mm long, with jagged margins at the tips; leaf blades flat, rough or occasionally just hairy above, rough or smooth below, 8-40 cm long and 2-5 mm wide.

Flowers: Inflorescence a congested to somewhat open panicle, pale or less often purplish, 6-15 (25) cm long, with the longer branches 2-4 cm long; spikelets 1-flowered; glumes long-pointed, 4-5 mm long, smooth to somewhat rough short-hairy, especially on the keels; lemmas 3-4 mm long, jagged and 4-toothed at the tips, with stout, strongly twisted and abruptly bent awns 3.5-4.5 mm long, attached near the base, the callus hairs of varying length, up to 1 mm long; rachillas about 1 mm long, with hairs to 2 mm.

Calamagrostis sesquiflora **(Trin.) Kawano** (*C. purpurascens* R. Br. ssp. *tasuensis* Calder & Taylor)
one-and-a-half-flowered reedgrass

HABITAT/RANGE:

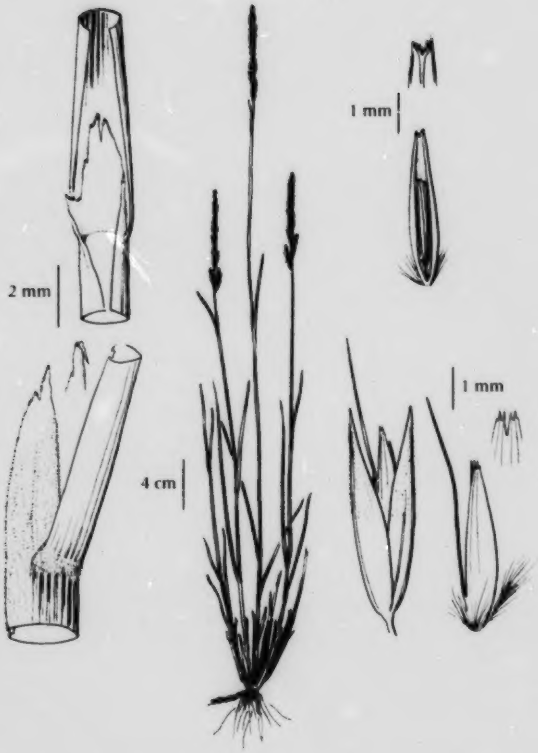
Mesic to moist rocky slopes in the subalpine to lower alpine zones; infrequent on NW Vancouver Island, frequent on the Queen Charlotte Islands; amphiberingian, N to AK and S to N WA; NE Asia.

DESCRIPTION:

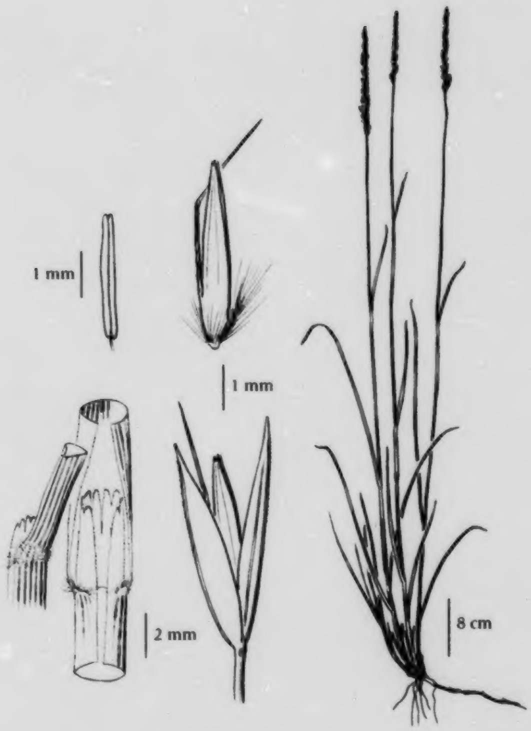
General: Perennial, tufted grass from fibrous roots and short rhizomes; stems unbranched, 15-50 cm tall, with 2 or sometimes 3 nodes.

Leaves: Sheaths and collars smooth; blades flat to in-rolled, 2-5 mm wide, smooth below, smooth to rough above the leaf sheaths; ligules 2-5 mm long.

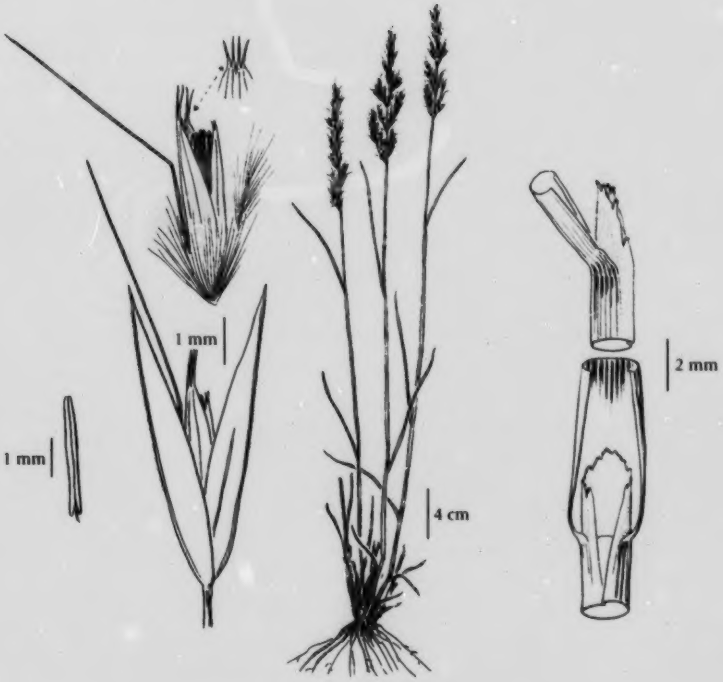
Flowers: Inflorescence a contracted to somewhat open panicle 4-12 cm long, its branches to 4 cm long; spikelets 1-flowered; glumes long-pointed, 5-7 (8) mm long, often purple-tinged, smooth to rough only on the keels; lemmas 3-3.5 mm long, rough, 4-toothed at the tips, awned, the awns stout, twisted and bent, attached near the lemma base and exserted 3-6 mm beyond the glume tips, the callus hairs tufted, 2-3 mm long; rachillas 1-2 mm long, bearded with hairs about as long.


2 mm
1 mm
4 cm
1 mm

Calamagrostis purpurascens var. *purpurascens*


1 mm
1 mm
2 mm
8 cm

Calamagrostis rubescens


1 mm
1 mm
4 cm
2 mm

Calamagrostis sesquiflora

Calamagrostis stricta **(Timm) Koel.** (*C. crassiglumis* Thurb., *C. inexpansa* vars. *brevior* [Vasey] Stebbins and *inexpansa* = ssp. *inexpansa*; *C. neglecta auct. non* [Ehrh.] Gaertn., B. Mey. & Scherb. = ssp. *stricta*)
slimstem reedgrass

HABITAT/RANGE:

Mesic to wet meadows, gravel bars, fens, marshes, lakeshores and open forests in the montane to alpine zones; ssp. *inexpansa* - common in BC east of the Coast-Cascade Mountains, infrequent in coastal BC; ssp. *stricta* - frequent in N BC east of the Coast-Cascade Mountains, rare in SC and SE BC; ssp. *inexpansa* - amphiberingian, N to AK, YT and NT, E to NF and S to ME, NH, NY, OH, IN, NE, NM, AZ and CA; NE Asia; ssp. *stricta* - circumboreal, N to AK, YT and NT, E to Labr. and S to NH, MI and CO; Eurasia.

DESCRIPTION:

General: Perennial, loosely tufted, fine to coarse, slender to robust grass from fibrous roots and rhizomes; stems unbranched, 20-120 cm tall, with 2 to 4 nodes.

Leaves: Sheath summits smooth or rarely with tufts of hair; leaf blades often in-rolled or stiff and flat, 2-6 mm wide, 5-30 cm long, smooth to rough or glaucous above, smooth or rough below; ligules 1-5.5 mm long, entire or with jagged margins at the tips.

Flowers: Inflorescence a stiff, erect, congested panicle 5-20 cm long, the longer branches 1.5-5 cm long, spikelet-bearing for over 1/2 their length; spikelets 2-4.5 cm long, 1-flowered; glumes 2-6 mm long, subequal, thin and smooth or thick and opaque, smooth to rough short-hairy, inconspicuously rough on the keels, occasionally translucent on the margins, sometimes purple-tinged; lemmas 2-5 mm long, notched or 4-toothed at the tips, finely rough, bearing stout to slender, straight or sometimes twisted and bent awns attached 1/3-1/2 above the base of the lemmas and extending about to the tips of the glumes or slightly beyond, sometimes shorter than the glumes, the callus hairs of varying length, up to 1/2 to 3/4 as long as the florets; paleas 1/2 to almost as long as the lemmas, thin, usually translucent, sometimes inconspicuously rough short-hairy along the nerves; rachillas about 1 mm long, bearded with hairs as long as those of the calluses; anthers either normally or poorly developed, then sterile and remaining closed at maturity.

Notes: Two subspecies occur in BC. The ssp. *inexpansa* includes many apomictic forms and intergrades with the ssp. *stricta*. Coastal forms of ssp. *inexpansa* with hard, stiff glumes have been separated as *C. crassiglumis*, but these seem to be forms that are capable of reproducing asexually part of the time and easily fall within this morphologically variable species. The subspecies may be separated as follows:

1. Glumes thick, often opaque, 3-6 mm long; blades 3-6 mm wide, flat, rough above, usually somewhat rough below; ligules 3-6 mm long, often with jagged margins .... ssp. *inexpansa* (A. Gray) C.W. Greene

1. Glumes thin, 2-4.5 mm long; blades 2-4 mm wide, often in-rolled, smooth to rough above, usually smooth below; ligules 1-3 mm long, usually entire .... ssp. *stricta*

CALAMOVILFA

Calamovilfa longifolia **(Hook.) Scribn. var.** ***longifolia***
prairie sandgrass; prairie sand-reed

HABITAT/RANGE:

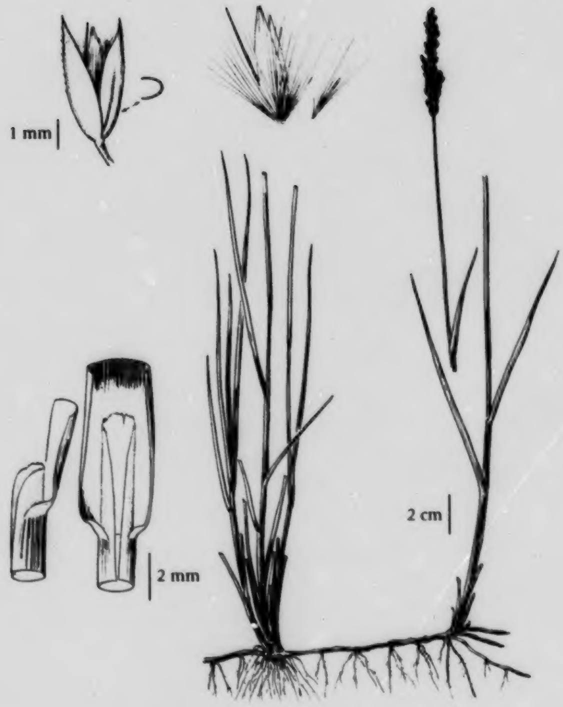
Dry sandy slopes, shrublands and open forests in the steppe and lower montane zones; infrequent in SE BC; E to MB and S to IN, IA, KS, NM and N ID.

DESCRIPTION:

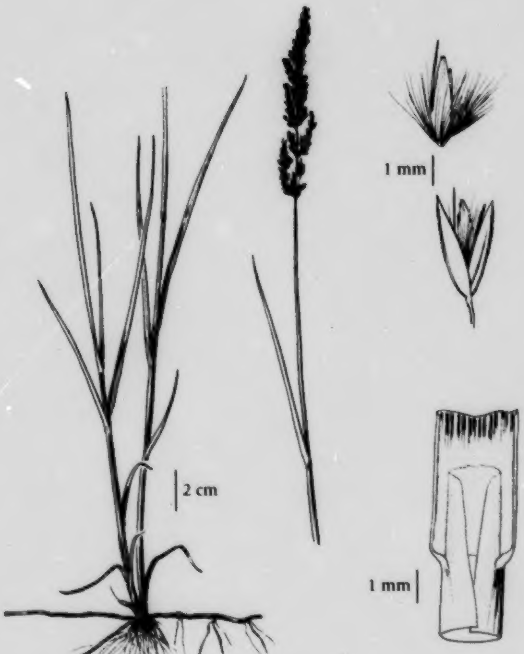
General: Perennial, tough, wiry grass from well-developed rhizomes; stems semi-solid, 60-150 cm tall.

Leaves: Sheaths open, smooth to soft long-hairy, the hairs at the throats 2-3 mm long; blades 3-8 mm wide, strongly in-rolled, narrowed to long, slender tips; ligules scarcely 1 mm long, of short hairs.

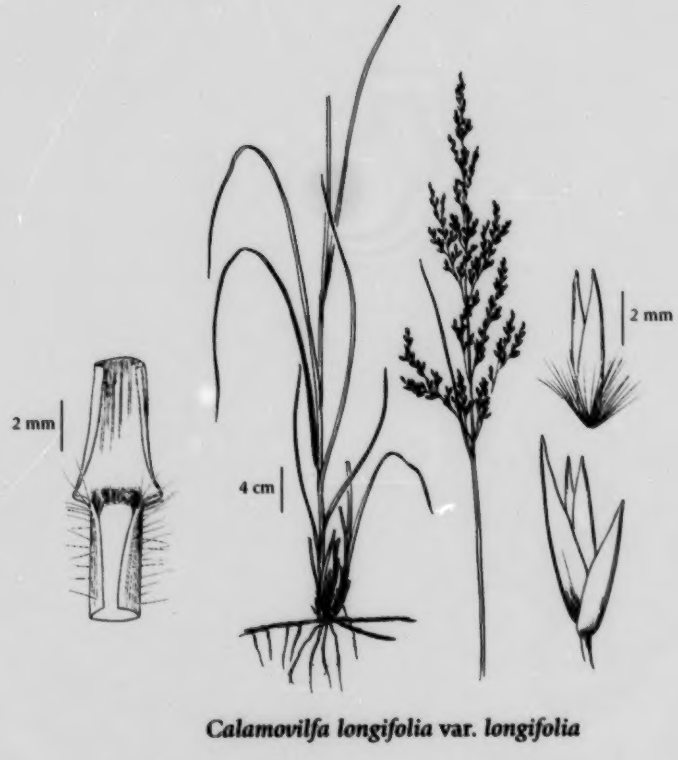
Flowers: Inflorescence a large, narrow to somewhat spreading panicle up to 40 cm long, the lower branches more or less spreading, 3-6 cm long; spikelets 1-flowered, articulating above the glumes, pale green to purplish; glumes (3.5) 4.5-7 mm long, long-pointed, the lower ones 1.5-2.5 mm shorter than the upper ones; lemmas usually intermediate in length between the 2 glumes, smooth, pointed to blunt, unawned, obscurely nerved, the callus hairs abundant, about 1/2 as long as the lemmas; rachillas not prolonged beyond the paleas; paleas from slightly shorter to longer than the lemmas; lodicules broadly egg-shaped, shallowly lobed, about 0.8 mm long and wide; ovaries smooth; anthers 0.5-4.5 mm long.



Calamagrostis stricta ssp. *inexpansa*



Calamagrostis stricta ssp. *stricta*



Calamovilfa longifolia var. *longifolia*

CATABROSA

Catabrosa aquatica **(L.) Beauv. var. *aquatica***

water whorlgrass; brookgrass

HABITAT/RANGE:

Wet meadows, streambanks and pond and lake margins in the lowland and montane zones; rare in SW BC (Texada Island where probably introduced) and SE BC (Fernie); circumpolar, E to PQ and S to WI, IA, NE, NM, AZ and NV; Europe.

DESCRIPTION:

General: Perennial grass from rhizomes; stems hollow, erect to decumbent, 10-60 cm tall.

Leaves: Sheaths sometimes open half their length, sometimes closed to near the summit; blades 2-13 mm wide, flat, narrowed to prowlike tips; ligules 2-8 mm long, minutely more or less rough, jagged to nearly entire.

Flowers: Inflorescence a panicle, (5) 7-20 cm long; spikelets usually 2-flowered, occasionally only 1-flowered, about 3 mm long; lower glumes 0.7-1.3 mm long, the upper ones 1.5-2.2 mm long; upper florets usually deciduous well before the lower; lemmas 2.5-3 mm long, prominently 3-nerved; rachilla joints usually at least 1 mm long; paleas as long as the lemmas; lodicules about 0.3 mm long; anthers about 1.5 mm long.

CENCHRUS

Cenchrus longispinus **(Hack.) Fern.**

burgrass; field sandbur

HABITAT/RANGE:

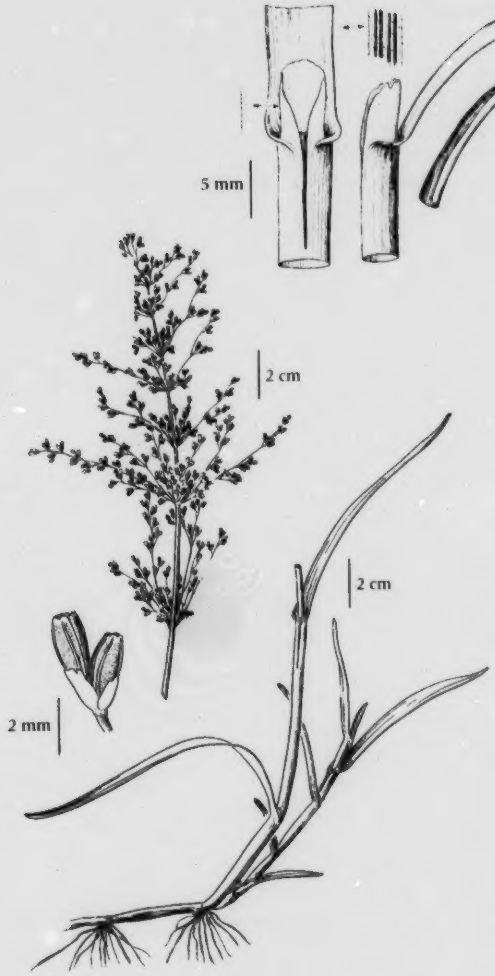
Moist to dry sandy shores and disturbed sites in the lowland and steppe zones; rare in SW BC (New Westminster), infrequent in extreme SC BC; introduced from the S U.S.

DESCRIPTION:

General: Annual, prostrate, often widely matted grass from fibrous roots; stems semi-solid, 60-150 cm long.

Leaves: Sheaths open, smooth, keeled, the collars constricted, sometimes hairy; blades 2-6 mm wide, flat or folded; ligules 1-1.5 mm long, the fringes 2 to 4 times as long as the basal membranes.

Flowers: Inflorescence of short, crowded, spikelike racemes; the spikelets 2-flowered, 5-6 mm long, tightly enclosed within and deciduous with spiny burs formed by the basal union of numerous sterile branches, 1, 2, or more per bur, the burs 5 to 10, 4-6 mm wide when pressed, finely hairy, the spines numerous, flattened, more or less fused at the base; lower glumes considerably reduced, narrow, 1 (3)-nerved, the upper ones usually shorter than the lower lemmas, pointed, 3-nerved; lower flowers sterile but usually with lemmas and paleas, the upper flowers perfect with lemmas firm; lodicules absent.


5 mm
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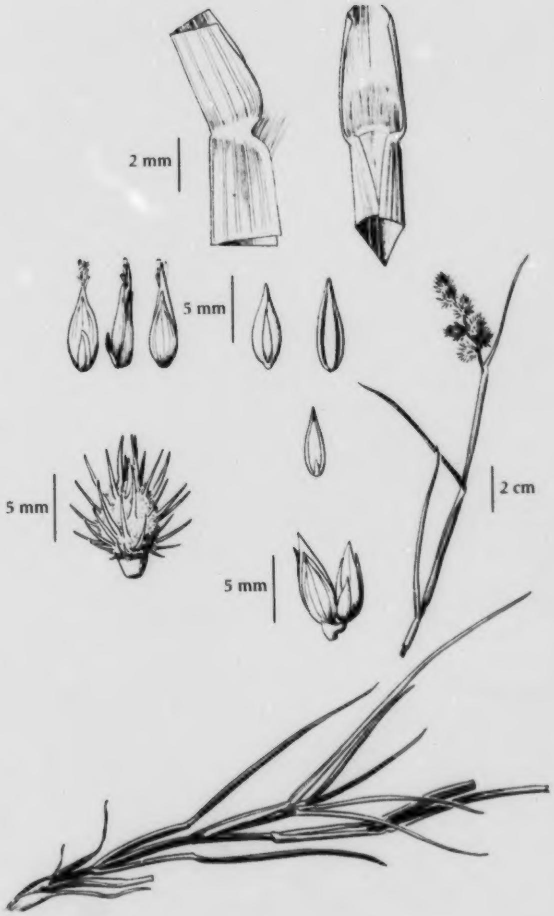
Catabrosa aquatica var. *aquatica*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Cenchrus longispinus

CINNA

Cinna latifolia **(Trev. *ex* Goepp.) Griseb.**

nodding wood-reed; wood reedgrass

HABITAT/RANGE:

Moist streamsides, meadows, clearings and forests from the lowland to montane zones; common throughout BC; circumpolar, N to AK, YT and SW NT, E to NF and S to ME, MA, PA, SC, TN, MN, SD, NM, UT, NV and CA; Eurasia.

DESCRIPTION:

General: Perennial grass from rhizomes; stems hollow, 70-200 cm tall.

Leaves: Sheaths open, smooth or minutely rough; blades 7-15 mm wide, flat, lax; ligules 3-8 mm long, membranous, hairy, the margins jagged or usually more or less strongly torn.

Flowers: Inflorescence a large, loose panicle 15-30 cm long, the branches spreading to drooping; spikelets 1-flowered, flattened, articulating below the glumes; florets stalked; glumes (2) 3-4 mm long, slender, 1-nerved, strongly keeled, long-pointed, the upper ones slightly longer than the lower, more or less minutely rough to short-hairy on the keels and often over the back; lemmas 2-3.2 mm long, strongly compressed, short-hairy over the backs, unawned or awned (sometimes in the same panicle), when present the awns subterminal, straight, up to nearly 1 mm long; paleas nearly as long as the lemmas, keeled; rachillas bristlelike, mostly about 0.6 mm long, prolonged behind the paleas; lodicules wedge- to egg-shaped, toothed, about 0.3 mm long; ovaries smooth; anthers about 1 mm long.

COLEANTHUS

Coleanthus subtilis **(Tratt.) Seidl**

moss grass

HABITAT/RANGE:

Damp, muddy lake margins in the lowland and lower montane zones; rare in SW and SC BC, known only from Shuswap and Hatzic Lakes; native to N and C Europe.

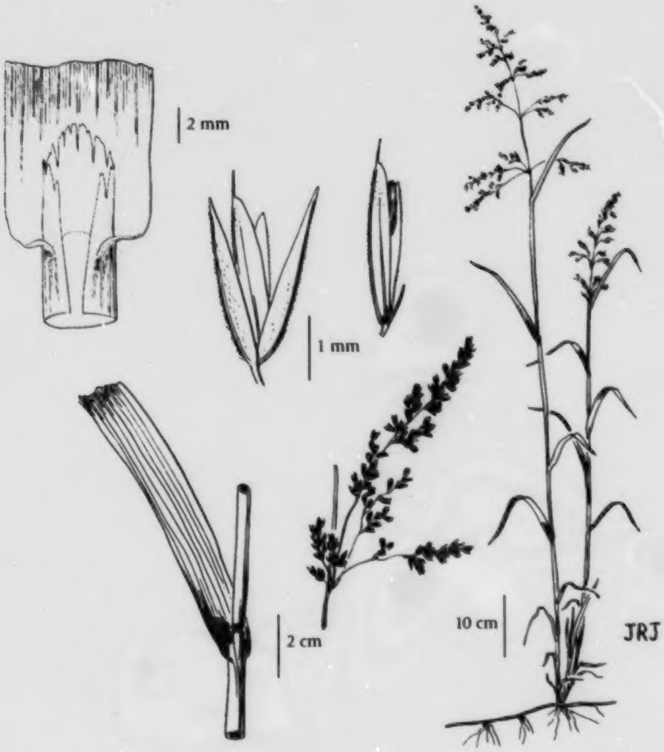
DESCRIPTION:

General: Annual, spreading, more or less matted grass from fibrous roots; stems hollow, 2-8 (10) cm tall.

Leaves: Sheaths closed, inflated; blades 0.5-1.5 mm wide, about 1 (to 2) cm long; ligules 1-1.5 mm long, membranous.

Flowers: Inflorescence a panicle 1-5 cm long with 3 to 6, distant whorls of branches in umbel-like clusters, the branches spreading to drooping; spikelets 1-flowered, flattened, articulating below the glumes; florets long-stalked; glumes absent; lemmas about 1 mm long, awnlike tips about equal to the egg-shaped basal portions; paleas about 0.5 mm long, about 1/2 as long as the lemmas, the 2 keels slightly prolonged; rachilla absent; lodicules absent; ovaries smooth, the fruits slender, brownish, spindle-shaped, surpassing the lemmas and paleas; stigmas about equalling the lemmas; stamens 2, exserted; anthers about 0.3 mm long.

Notes: There is a good possibility that this species is a circumpolar disjunct and not merely an introduction since many companion plants occurring at both Shuswap and Hatzic Lakes are the same as those found in Europe (A. Ceska, pers. comm.). The small stature (2-8 cm) of the plant and its late flowering date (October) may be the reason it is known only from the above locations and the lower Columbia River, OR/WA.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10 cm
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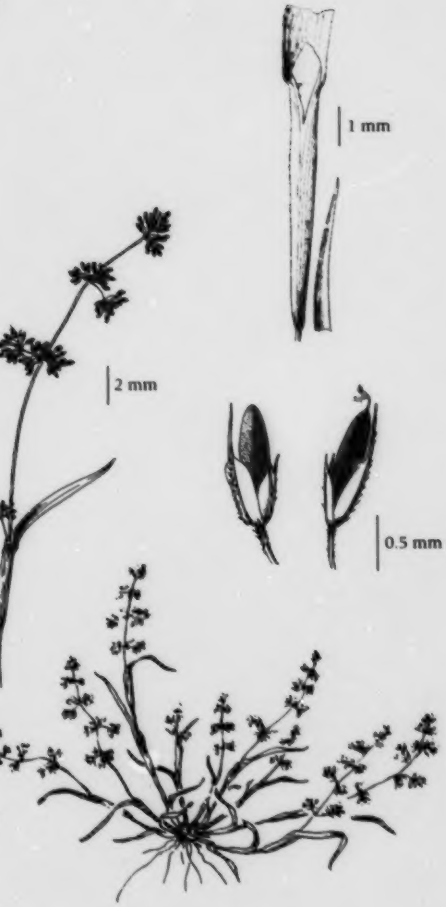
Cinna latifolia


1 mm
2 mm
0.5 mm
2 cm

Coleanthus subtilis

CYNODON

Cynodon dactylon **(L.) Pers.**

Bermuda grass

HABITAT/RANGE:

Dry to mesic waste places in the lowland zone; rare in SW BC (Vancouver area); introduced from Eurasia and N Africa.

DESCRIPTION:

General: Perennial grass from elongate, scaly rhizomes; stems erect, 10-30 cm tall, the aerial stems decumbent and freely rooting.

Leaves: Sheaths open, the collars and throats long-hairy; blades mostly 1.5-3 (5) mm wide, flat, short; ligules with membranous base scarcely 0.3 mm long, fringed with straight hairs 2-4 mm long.

Flowers: Inflorescence of 4 or 5 digitate, terminal spikes up to 5 cm long; spikelets unstalked, borne in 2 rows on one side of the rachis, articulating above the glumes, usually 1-flowered; glumes about equal, narrow, 1-nerved; lemmas about 2 mm long, longer than the glumes, strongly compressed; paleas nearly as long as the lemmas, 2-nerved; rachillas prolonged and bristlelike, very occasionally bearing rudimentary second flowers; lodicules 2, more or less wedge-shaped, about 0.3 mm long.

CYNOSURUS[10]

1. Panicles spikelike, somewhat curved, less than 1 cm wide; awns less than 1 mm long; plants perennials, 40-80 cm tall; ligules 1-1.5 mm long, the margins finely jagged and fringed with short hairs .... *C. cristatus*

1. Panicles egg-shaped, bristly, straight, more than 1 cm wide; awns 3-10 mm long; plants annuals, (10) 20-50 cm tall; ligules 2-7 (11) mm long, the margins coarsely jagged to toothed .... *C. echinatus*

Cynosurus cristatus **L.**

crested dogtail

HABITAT/RANGE:

Dry to mesic fields and waste places in the lowland, steppe and montane zones; frequent on S Vancouver Island, infrequent in SW (Vancouver area), SC and SE BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems hollow, erect, 40-80 cm tall.

Leaves: Sheaths open, the upper usually smooth, the lower often short-hairy, the hairs angled downwards; blades 1.5-2.5 mm wide, flat to folded; ligules about 1 (0.8-1.5) mm long, membranous, smooth, the tips blunt and straight, the margins finely jagged and fringed with short hairs.

Flowers: Inflorescence a much contracted, erect, somewhat curved, spikelike panicle 3-8 cm long, with the flowers and branches borne on one side of the axis; spikelets borne mostly in pairs on very short branches, the pairs each with 1 spikelet fertile, unstalked, the other sterile, 4-5 mm long, short-stalked, much flattened and fanlike, consisting of glumes and 7 to 9 sterile (empty) lemmas; glumes of the fertile spikelets 2.5-3.5 mm long, nearly equal, strongly keeled, rough, the margins broad, membranous and small-toothed, the glumes of the sterile spikelets flattened, somewhat narrower than, but otherwise similar to the sterile lemmas; fertile lemmas about 4 mm long, rounded, rough, the awn tips about 0.5 mm long; lodicules about 0.5 mm long; anthers about 3 mm long.

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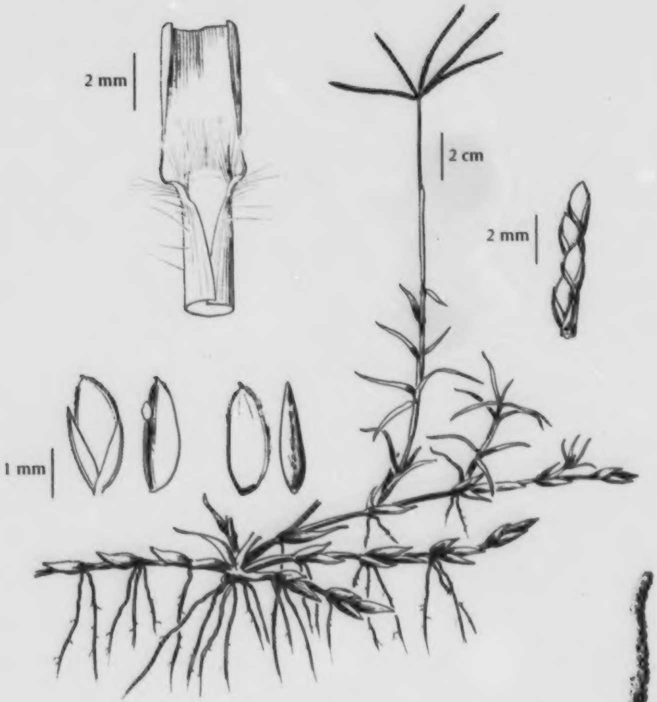
[10] Key adapted from Hitchcock (1969).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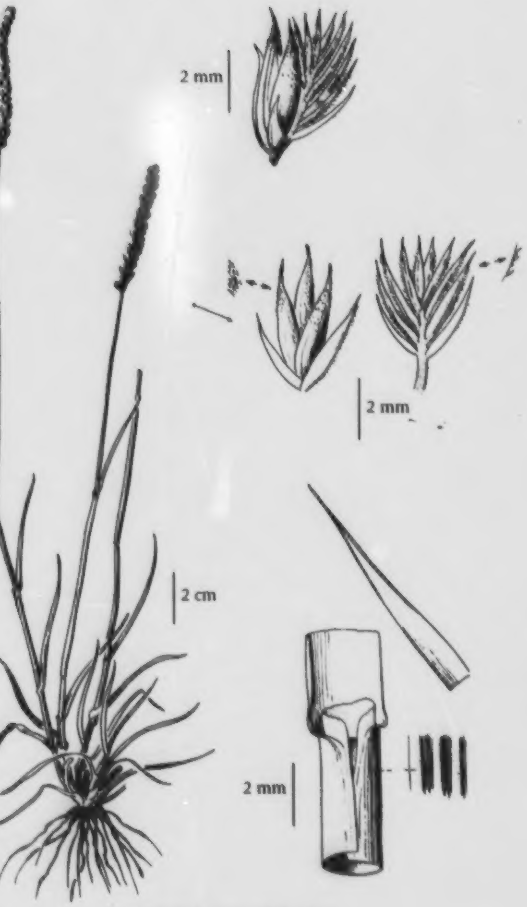
Cynodon dactylon


2 mm
2 mm
2 cm
2 mm

Cynosurus cristatus

***Cynosurus echinatus* L.**

hedgehog dogtail

HABITAT/RANGE:

Mesic sandy shores, Garry oak woodlands, grassy rock outcrops and disturbed sites in the lowland, steppe and montane zones; infrequent in SW BC, rare in SE BC; introduced from Europe.

DESCRIPTION:

General: Annual grass from fibrous roots; stems hollow, erect, (10) 20-50 cm tall.

Leaves: Sheaths open, inflated; blades 1.5-2.5 mm wide, flat, more or less rough, the margins freed from the sheaths at different levels; ligules 2-7 (11) mm long, prominent, membranous, blunt, the margins coarsely jagged to toothed.

Flowers: Inflorescence a dense, erect, bristly, egg-shaped, panicle 1-4 cm long; spikelets borne mostly in pairs on very short branches, the pairs each with 1 spikelet fertile, 2-flowered, the upper flowers sometimes reduced to tiny rudiments, unstalked, the other sterile, 4-5 mm long, short-stalked, much flattened and fanlike, consisting of glumes and several sterile (empty) lemmas, the lemmas similar to the glumes; glumes of the fertile spikelets 5-6 mm long, nearly equal, strongly keeled, flattened, awned, the awns 1-2.5 mm long, the glumes of the sterile spikelets keeled, fringed with short hairs, long-pointed; fertile lemmas about 5 mm long, rounded on the back, awned, the awns 3-10 mm long; lodicules about 0.2 mm long; anthers about 2 mm long.

DACTYLIS

***Dactylis glomerata* L.**

orchard-grass

HABITAT/RANGE:

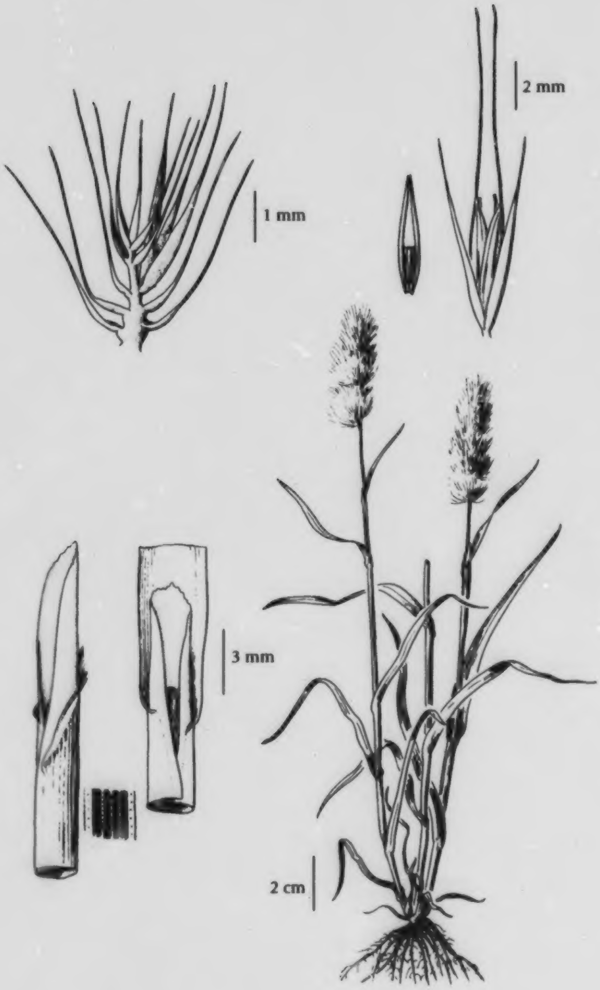
Mesic meadows, Garry oak woodlands, pastures, roadsides and disturbed sites in the lowland, steppe and montane zones; common in S BC, less frequent in N BC; introduced from Eurasia.

DESCRIPTION:

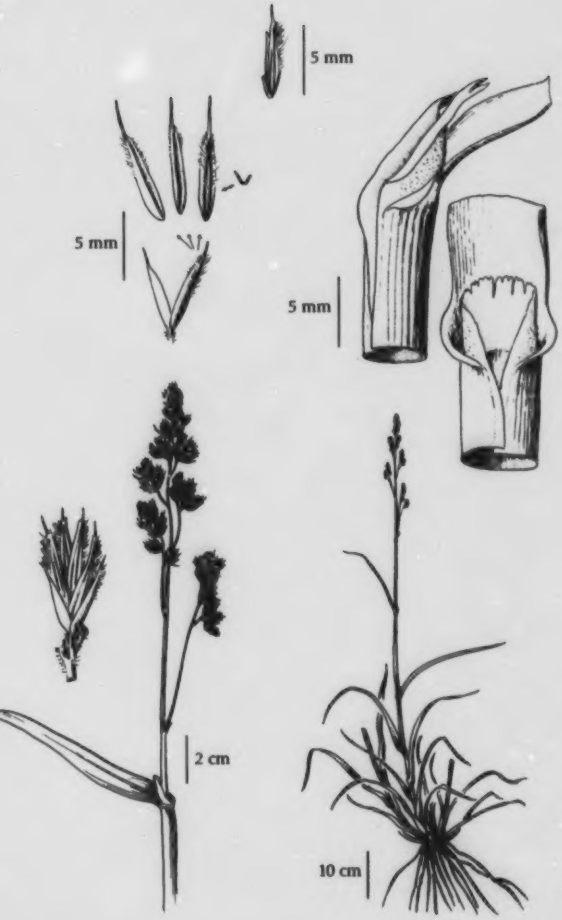
General: Perennial, strongly tufted grass from fibrous roots; stems hollow, erect, up to 150 cm tall.

Leaves: Sheaths closed, more or less compressed, smooth to slightly rough; blades (2) 3-11 mm wide, flat, mostly somewhat rough, usually the 2 margins freed from the sheaths at different levels; ligules mostly 3-9 mm long, membranous, generally sparsely hairy, blunt to pointed, the margins finely jagged, fringed with small hairs, the upper halves usually turned back and split in several places.

Flowers: Inflorescence a panicle 3-15 cm long, the branches stiffly ascending to spreading or even reflexed (the lower ones); spikelets strongly to one side in dense clusters, compressed, 3- to 5-flowered, 5-9 mm long, nearly unstalked, articulating above the glumes; glumes 4-6 mm long, keeled, the keels fringed with stiff hairs, usually 2 (3)-nerved, the tips short, soft and awnlike, the lower glumes lopsided, the upper narrower and usually 1-nerved; lemmas 5-8 mm long, keeled, the keels fringed with hairs above, awned, the awns about 1 mm long; paleas nearly equal to the lemmas, long-pointed, nerved, the nerves fringed with short hairs; lodicules short, membranous, scarcely 0.5 mm long; anthers about 4 mm long.


2 mm
1 mm
3 mm
2 cm

Cynosurus echinatus


5 mm
5 mm
5 mm
2 cm
10 cm

Dactylis glomerata

DANTHONIA[11]

1. Lemma tips appearing 3-cleft with small short abrupt points between 2 pointed teeth .... *D. decumbens*
1. Lemma tips with twisted, abruptly bent awns arising between 2 pointed to stiff-awned teeth.
    2. Body of the lemmas (2.5) 3-4 (5) mm long; calluses of florets in the middle of the spikelets about as long as wide, the calluses convex in dorsal view; seeds 1.5-2 (2.3) mm long .... *D. spicata*
    2. Body of the lemmas (3) 4-10 (11) mm long; calluses of florets in the middle of the spikelets longer than wide, the calluses concave in dorsal view; seeds (2) 2.2-4.2 mm long.
        3. Lower branches of the inflorescence (pedicels) zig-zagging and slightly to broadly spreading, as long as to much longer than the spikelets .... *D. californica*
        3. Lower branches of the inflorescence stiff and erect, shorter than to as long as the spikelets (sometimes a single spikelet in *D. unispicata*).
            4. Stems not disarticulating at the nodes; lower leaf sheaths smooth; inflorescence a contracted panicle of (4) 5 to 10 spikelets, the lower branches usually with 2 or 3 spikelets .... *D. intermedia*
            4. Stems disarticulating at the nodes; lower leaf sheaths soft-hairy; inflorescences usually with 1 spikelet, or if 2 or 3 spikelets, then in racemes .... *D. unispicata*

***Danthonia californica* Boland.** (*D. americana* Scribn., *D. macounii* A. S. Hitchc.)

California oatgrass

HABITAT/RANGE:

Moist to dry grasslands, meadows, open woods, shorelines and rocky bluffs in lowland and montane zones; common in SW BC, rare in SC BC; E SC SK and S to SD, NM, AZ, and CA; Chile.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems disarticulating at the nodes (10) 30-130 cm tall.

Leaves: Sheaths smooth or soft-hairy, the upper ones usually smooth or unevenly soft-hairy, the hairs 1-2 mm long; blades (1) 2-5 (6) mm wide, flat to in-rolled, smooth to soft-hairy; ligules less than 1 mm long, fringed with fine hairs.

Flowers: Inflorescence a raceme of (2) 3 to 6 (10) slightly to broadly spreading spikelets, the branches longer than the spikelets; spikelets (10) 14-26 (30) mm long; lemmas 5-10 mm long, hairy along the margins, rarely smooth, sometimes sparsely hairy over the back, the apical teeth stiff-awned, (2) 4-6 (7) mm long, also awned from the back, these awns abruptly bent, (7) 8-12 mm long, the calluses usually longer than wide, with stiff hairs laterally; anthers to 4 mm long.

***Danthonia decumbens* (L.) DC.** (*Sieglingia decumbens* [L.] Bernh.)

heathergrass

HABITAT/RANGE:

Mesic to dry sandy or rocky meadows in the lowland zone; rare in SW BC (Gulf Islands); introduced from Europe and NW Asia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems disarticulating at the nodes, 8-60 cm tall.

Leaves: Sheaths smooth or soft-hairy; blades 0.5-4 mm wide, 5-15 cm long, smooth or sparsely soft-hairy, usually flat; ligules less than 1 mm long, fringed with short hairs.

Flowers: Inflorescence a narrow panicle with up to 15 spikelets on erect branches, the lower branches with 1 to 3 spikelets; spikelets 6-15 mm long; lemmas 5-6 mm long, smooth or hairy on the margins, awned, the awns reduced to short, sharp abrupt points between the two teeth at the tips (lemmas appearing 3-cleft), the calluses with tufts of stiff hairs laterally; florets of terminal inflorescences usually small, closed, self-fertilized, with 3 tiny anthers 0.2-0.4 mm long, rarely with the latter florets open and then with anthers to about 2 mm long.

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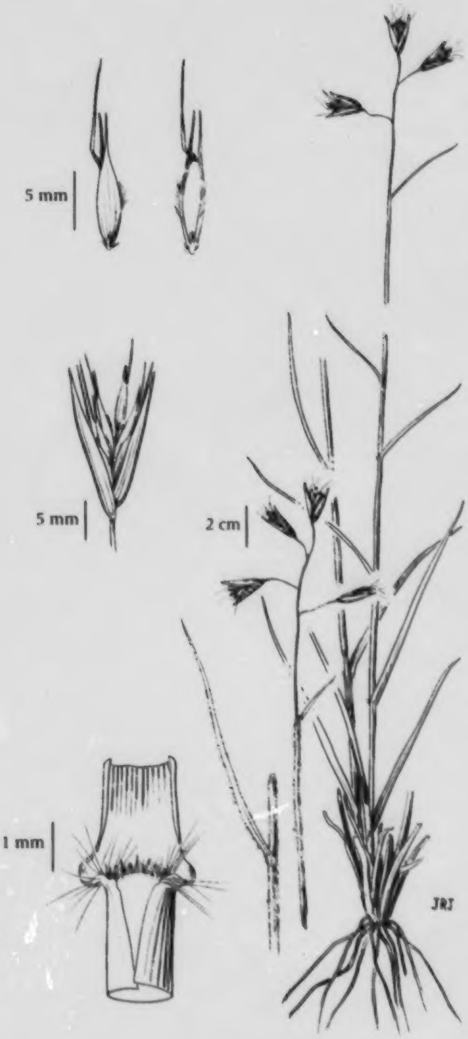
[11] Contributed by S.J. Darbyshire.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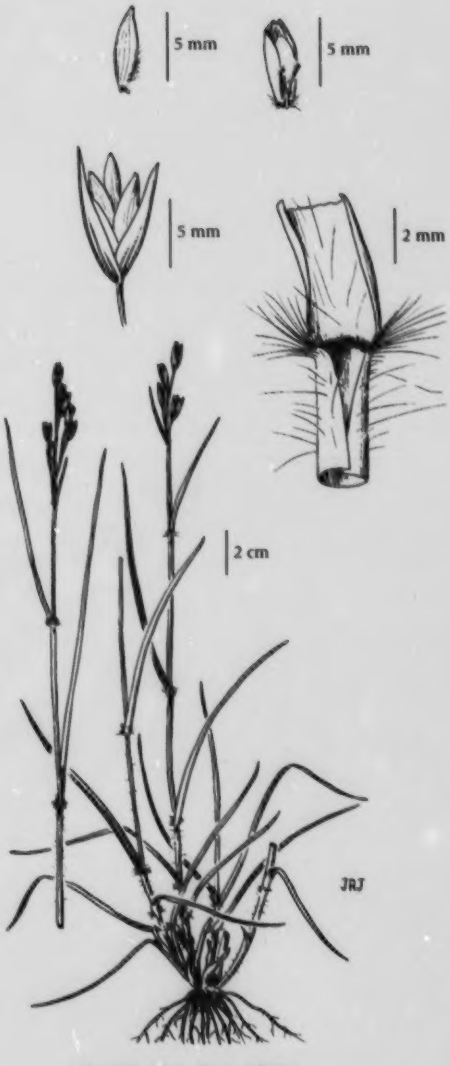
Danthonia californica


5 mm
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5 mm
2 mm
2 cm
JRJ

Danthonia decumbens

Danthonia intermedia **Vasey** (*D. cusickii* [T.A. Williams] A.S. Hitchc., *D. canadensis* B.R. Baum & Findlay)

timber oatgrass

HABITAT/RANGE:

Moist to dry meadows, grasslands, shrub-carrs, open forests, bogs and rocky slopes in the lowland to alpine zones; common in S BC south of 55° N, infrequent northward; N to AK, E to NF and S to MI, SD, NM, AZ and CA.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems not disarticulating at the nodes, 10-50 (70) cm tall.

Leaves: Sheaths usually smooth; blades long-hairy at the throat and collar, 1-3.5 mm wide, 5-10 cm long, smooth or slightly soft-hairy, not curled with age; ligules less than 1 mm long, fringed with short hairs.

Flowers: Inflorescence a narrow, congested panicle with (4) 5 to 10 spikelets, the lower branches with (1) 2 or 3 spikelets, stiff and erect, shorter than the spikelets; spikelets (11) 12-15 (19) mm long; lemmas 7-10 mm long, smooth over the back and densely soft-hairy along the margins, the apical teeth pointed to long-pointed (not stiff-awned), 1.5-2.5 mm long, awned from the back, the awns abruptly bent, 6.5-8 mm long, the calluses longer than wide, with stiff hairs laterally; anthers sometimes to 4 mm long.

Danthonia spicata **(L.) Beauv. *ex* Roem. & J.A. Schult.** (*D. spicata* var. *pinetorum* Piper, *D. thermale* Scribn.)

poverty oatgrass

HABITAT/RANGE:

Mesic to dry shorelines, open forests and meadows in the lowland and montane zones; frequent throughout BC; N to AK, YT and NT, E to NF and S to ME, MA, PA, SC, FL, MS, LA, TX, NM, ID and OR; Greenland.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems disarticulating at the nodes, (7) 10-70 (100) cm tall.

Leaves: Sheaths soft-hairy to smooth; blades 0.8-3 (4) mm wide, 6-15 (20) cm long, smooth to soft-hairy, curled with age; ligules less than 1 mm long, fringed with short hairs.

Flowers: Inflorescence a narrow panicle with 5 to 10 (18) spikelets, the lower branches with 2 or 3 spikelets, these with stalks shorter than the spikelets; spikelets 7-15 mm long; lemmas (2.5) 3-4 (5) mm long, soft-hairy, or sometimes smooth over the back, the apical teeth pointed to stiff-awned, 0.5-2 mm long, also awned from the back, the awns abruptly bent, 5-8 mm long, the calluses about as long as wide, with stiff hairs laterally; anthers to 2.5 mm long.

Danthonia unispicata **(Thurb.) Munro *ex* Macoun** (*D. californica* var. *unispicata* Thurb.)

one-spike oatgrass

HABITAT/RANGE:

Dry to mesic grasslands, meadows, rocky slopes and forest openings from the lowland to subalpine zones; infrequent in S BC; E to SK and S to SD, CO, UT, NV and CA.

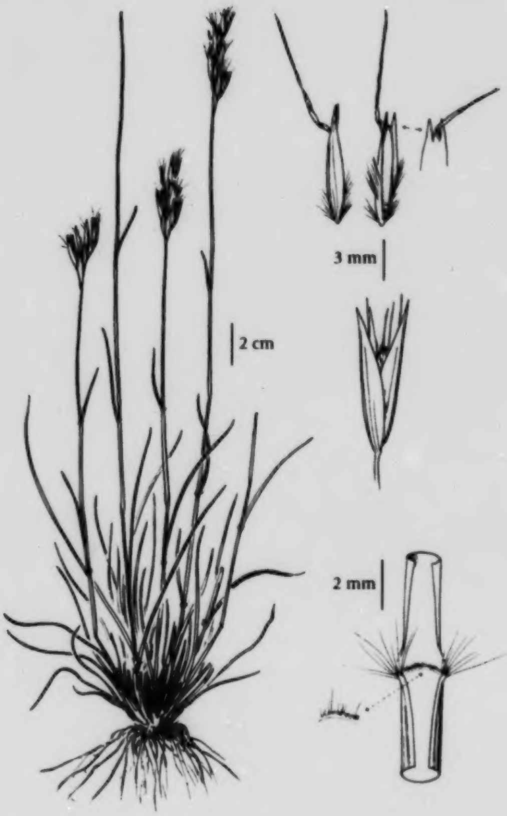
DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems disarticulating at the nodes, (10) 15-30 (42) cm tall.

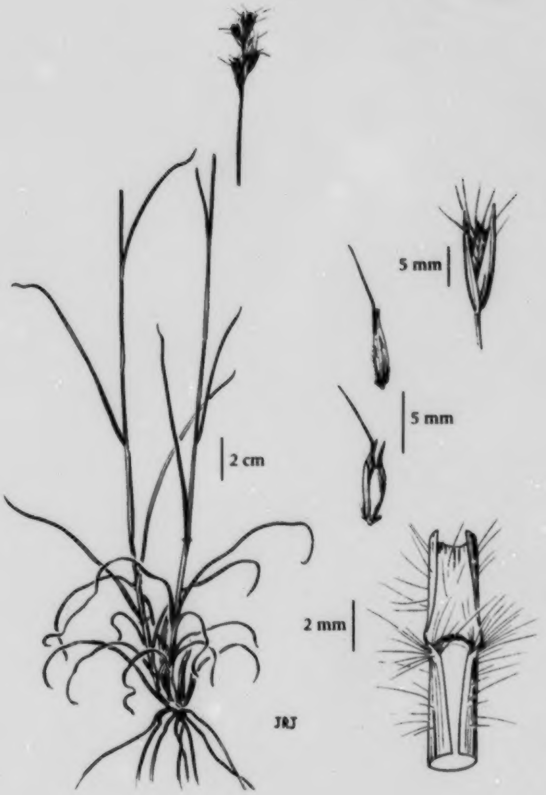
Leaves: Sheaths usually densely soft-hairy, the hairs often arising from pimples, sometimes the upper ones smooth; blades sparsely to densely soft-hairy and/or rough to stiff-hairy, rarely smooth, 1-3 mm wide; ligules less than 1 mm long, fringed with short hairs.

Flowers: Inflorescence with 1 or 2 (3) spikelets, then in a raceme, the lower spikelets on stiff, erect stalks shorter than the length of the spikelets; spikelets (8) 12-26 mm long; lemmas smooth over the back, soft-hairy on the margins, 5.5-11 mm long, the apical teeth pointed to stiff-awned, the awns (1.5) 2-6 (7) mm long, awned from the back, the awns abruptly bent, 5.5-13 mm long, the calluses longer than wide, with stiff hairs laterally; anthers to 3.5 mm long.

Notes: Possibly better treated as *Danthonia californica* var. *unispicata* Thurb.



Danthonia intermedia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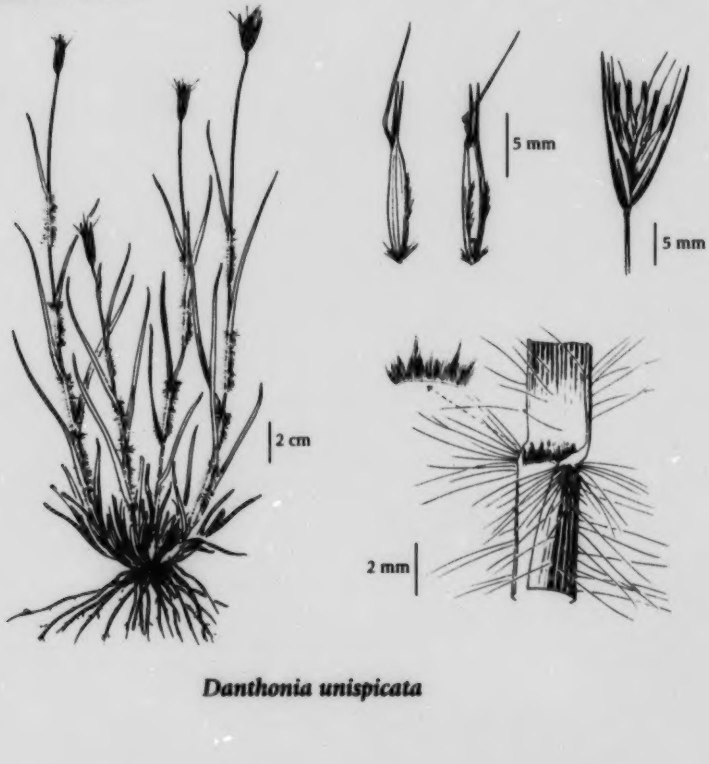
JRJ

Danthonia spicata


5 mm
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Danthonia unispicata

DESCHAMPSIA

1. Plants annuals .... *D. danthonioides*
1. Plants perennials.
    2. Leaves (at least some of them) flat, 1.5-3 (4) mm wide .... *D. cespitosa*
    2. Leaves threadlike, 1.5 mm wide or less.
        3. Panicles narrow, with erect branches .... *D. elongata*
        3. Panicles open, with spreading branches .... *D. flexuosa*

Deschampsia cespitosa **(L.) Beauv.** *(D. beringensis* Hult., *D. cespitosa* var. *arctica* Vasey = ssp. *beringensis; D. holciformis* J. Presl, *D. cespitosa* var. *littoralis* (Reut.) Richter, *D. cespitosa* var. *longiflora* Beal = ssp. *cespitosa)*
tufted hairgrass

HABITAT/RANGE:

Saline meadows, beaches and tidal marshes in the lowland zone and moist meadows in the montane to alpine zones (ssp. *beringensis)* and moist to mesic meadows, lake shores, rocky ridges, shrub-carrs and talus slopes in the montane to alpine zones (ssp. *cespitosa*); ssp. *beringensis* – common along the coast; ssp. *cespitosa* – common in and E of the Coast-Cascade Mountains in BC; ssp. *beringensis* – amphiberingian, N to AK and S to N WA; ssp. *cespitosa* – circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, KY, IL, MN, SD, NM, AZ, and CA; Greenland, Eurasia.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems numerous, 20-120 cm tall.

Leaves: Sheaths open, smooth to rough; blades matted at the base, rather stiff, sometimes flat but mostly folded or in-rolled, smooth to rough below, rough above, with a few, prominent, raised nerves, 1.5-3 (4) mm wide; ligules entire but often split, hairy, sharp-pointed or rounded, 4-8 mm long.

Flowers: Inflorescence a loose and open to narrow panicle, 8-30 cm long, the branches spreading or drooping to erect (even at maturity); spikelets usually glistening, purplish to tawny, 2-flowered, rarely 3-flowered; glumes rather narrow, the lower ones 1-nerved, 2.5-5 (6) mm long, the upper ones 3-nerved, often somewhat jagged, 3-6 (7) mm long; lemmas 5-nerved, 2.5-4 mm long, the tips jagged and 4-toothed, awned from the base, the awns 3-5 mm long, straight or bent, the callus hairs about 1 mm long; lodicules egg-shaped to lanceolate, 0.7-1 mm long; anthers 1.2-2.2 mm long.

Notes: This is a widespread, difficult complex and until an adequate monographic study is undertaken we are recognizing only two subspecies for BC:

1. Glumes mostly 5-7 mm long; lemmas averaging 4 mm long; panicles open during flowering .... ssp. *beringensis* (Hult.) Lawrence
1. Glumes mostly less than 5 mm long; lemmas averaging 3.5 mm, if longer then the panicles closed at flowering .... ssp. *cespitosa*

Deschampsia danthonioides **(Trin.) Munro *ex* Benth.**
annual hairgrass

HABITAT/RANGE:

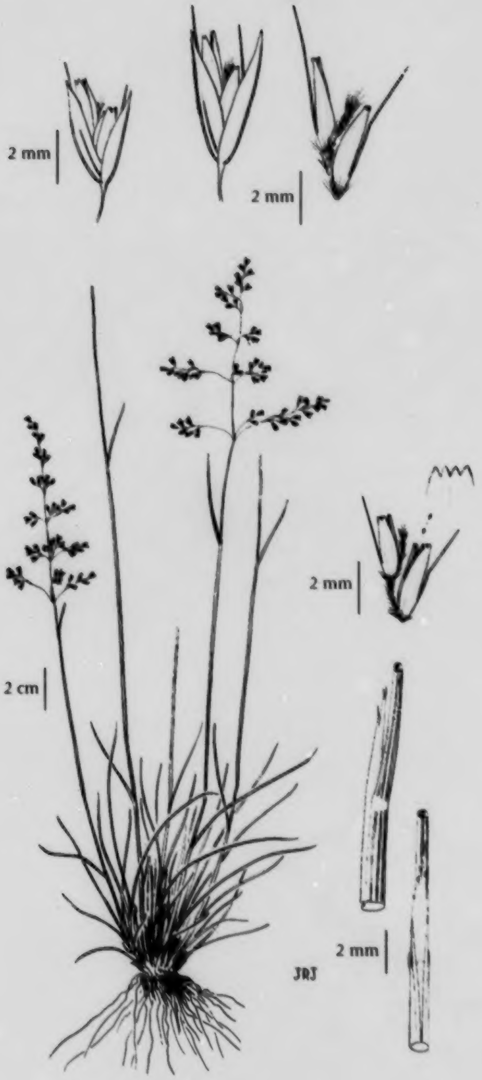
Dry to mesic roadsides, slopes, rock outcrops and moist vernal pools in the lowland and montane zones; infrequent in S BC; N to AK and YT, E to SW AB and S to NM, AZ, MX and CA; Chile.

DESCRIPTION:

General: Annual, simple to somewhat tufted grass from fibrous roots, smooth; stems 5-50 cm tall.

Leaves: Sheaths open; leaves mostly basal; blades threadlike, usually in-rolled, smooth to rough below, barely 1 (1.5) mm wide; ligules entire, hairy, sharp- to long-pointed, (1) 3-6 mm long.

Flowers: Inflorescence a narrow to widely spreading panicle, up to 25 cm long, sometimes reduced to a simple raceme; glumes 3-nerved, smooth to more or less rough, long-pointed, usually slightly exceeding the upper florets, the lower glumes 1-nerved, usually slightly longer than the upper glumes, 5-8 mm long; rachilla joints with hairs about as long as the calluses; lemmas firm, 5-nerved, smooth, shining, often purplish, about 2.5 mm long, the tips blunt, jagged and more or less fringed with fine hairs, awned from below midlength, the awns abruptly bent, about 5 mm long, the calluses strongly stiff-hairy about 1 mm long; paleas nearly equal to the lemmas; lodicules lanceolate, 0.2-0.3 mm long; anthers 0.3-0.5 mm long.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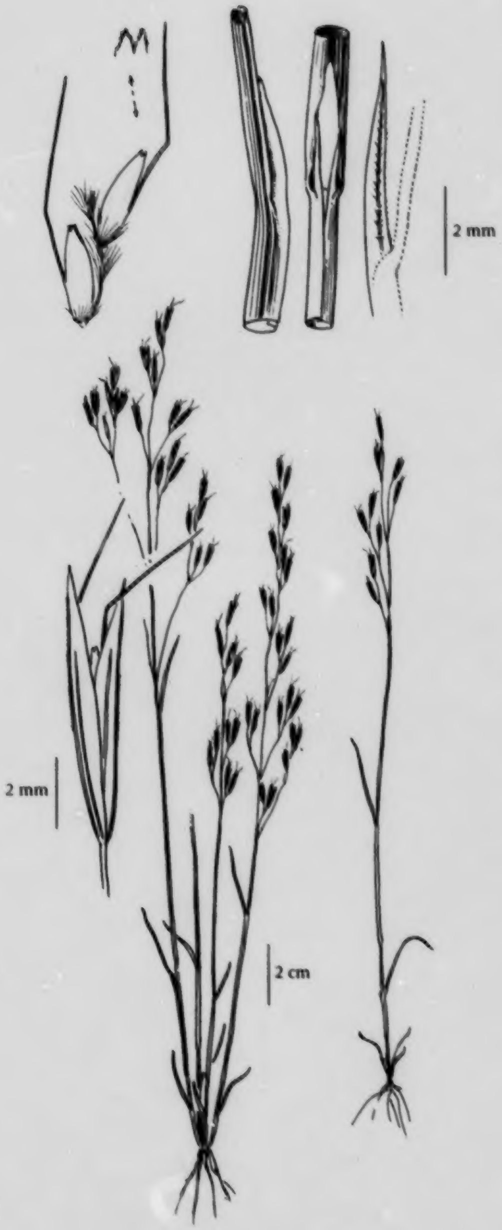
JRJ

Deschampsia cespitosa **ssp.** *cespitosa*



Deschampsia danthonioides

Deschampsia elongata **(Hook.) Munro *ex* Benth.** (*Aira elongata* Hook., *D. ciliata* [Vasey *ex* Beal] Rydb.)
slender hairgrass

HABITAT/RANGE:

Moist to mesic streambanks, shorelines, open forests, clearings and meadows from the lowland to alpine zones; frequent in S BC; N to AK and S YT, E to SW AB and S to NM, AZ, MX and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems numerous, slender, (10) 25-80 (100) cm tall.

Leaves: Sheaths open, usually smooth; blades smooth to more or less rough short-hairy, the basal leaves tufted, the blades threadlike, flat or folded or sometimes in-rolled, mostly only 2-4 cm long, but rarely over 1.5 mm wide, the stem blades sometimes flat; ligules entire but usually split, short-hairy, sharp- to long-pointed, 3-9 mm long.

Flowers: Inflorescence a narrow, pale greenish to purple panicle, 5-30 cm long, the slender branches ascending-erect; glumes 3-nerved, long-pointed, nearly equal, equalling or exceeding the upper florets; rachilla joints with hairs about as long as the calluses; lemmas firm, smooth, shining, often more or less rough short-hairy, (2) 2.5 (3) mm long, the tips blunt, jagged, awned from just below midlength, the awns nearly straight, about 3-4 mm long, the calluses with hairs half as long as the lemmas; paleas nearly equal to the lemmas; lodicules lanceolate, entire, 0.1-0.2 mm long; anthers about 0.5 mm long.

Deschampsia flexuosa **(L.) Trin.**
wavy hairgrass

HABITAT/RANGE:

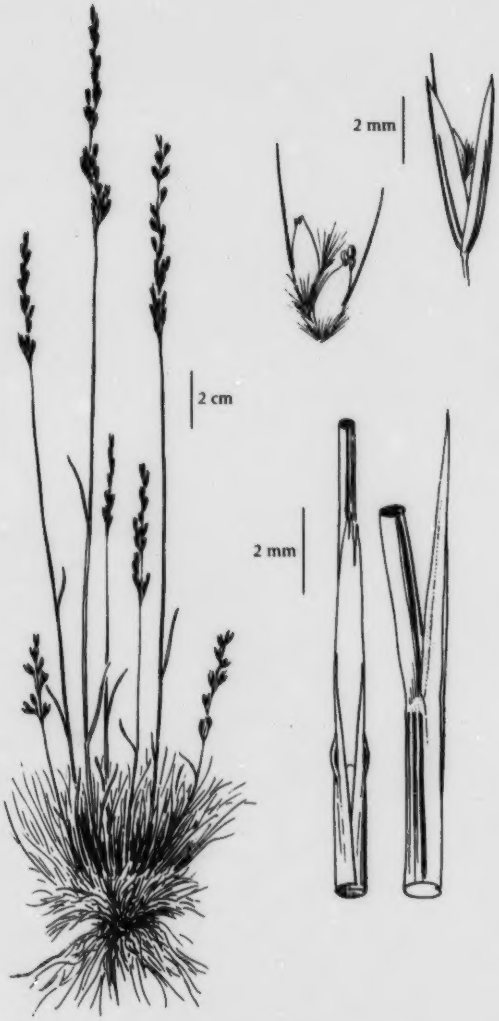
Moist ditches along roadsides in the lowland zone; rare in SW BC (Vancouver area); introduced from Europe.

DESCRIPTION:

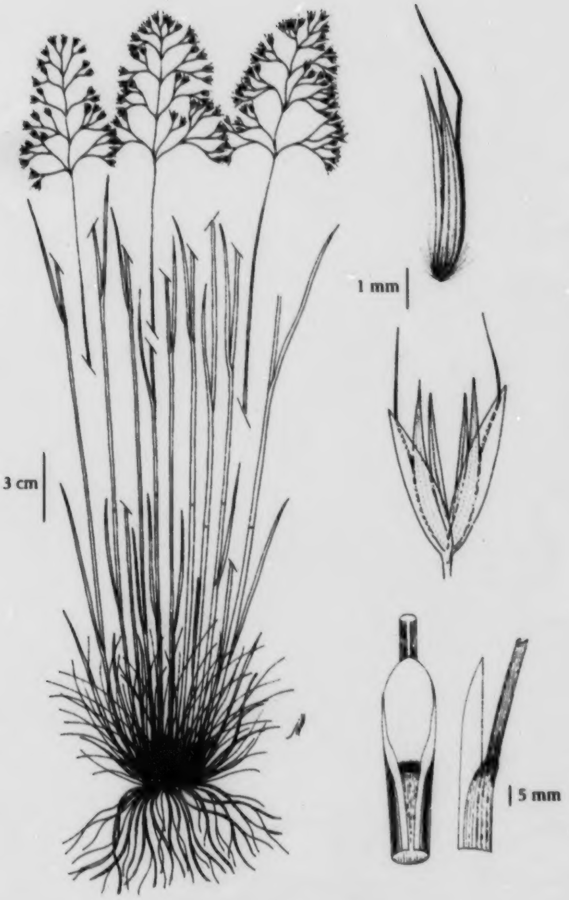
General: Perennial, densely tufted grass from fibrous roots, sometimes from slender stolons; stems erect, smooth, 20-100 cm tall.

Leaves: Sheaths open, rough; leaves mostly at or near the base; blades smooth to more or less rough, usually in-rolled, appearing bristlelike, smooth below, up to 20 cm long, 0.3-2 mm wide; ligules blunt to pointed, 1-2.5 mm long.

Flowers: Inflorescence a loose, open, somewhat nodding panicle, to 15 cm long, 5-15 cm wide, the branches spreading, smooth or sparsely more or less prickly, the lowest ones in clusters of 2 to 5; spikelets purplish or silvery, 4-7 mm long, rarely rooting from apical bulbils, these small bulbs produced above ground, often on the flowering stem; rachillas prolonged by less than 1/4 the length of the upper florets; glumes 1-nerved, egg-shaped to lanceolate, sharp-pointed, the keels smooth, the lower ones 3-4.5 mm long, the upper ones long-pointed, 3.6-5.3 mm long; lemmas egg-shaped to cylindrical, more or less rough, squared-off and minutely toothed at the ends, 3-6 mm long, awned from near the base, the awns twisted below midlength, the top half somewhat divergent or abruptly bent 5-7 mm long, surpassing the lemmas by 1-5 mm, the callus hairs about 1 mm long; anthers linear, 2-3 mm long.



Deschampsia elongata



Deschampsia flexuosa

DICHANTHELIUM

1. Ligules 2.5-5 mm long, spikelets 1.5-2 mm long .... *D. acuminatum*
1. Ligules 1-1.5 mm long; spikelets 2.7-3.2 mm long .... *D. oligosanthes*

Dichanthelium acuminatum **(Swartz) Gould & Clark var. *fasciculatum* (Torr.) Freckman** (*D. lanuginosum* [Elliot] Gould, *Panicum lanuginosum* Elliot, *P. occidentale* Scribn., *P. pacificum* A.S. Hitchc. & Chase, *P. thermale* Bolander)

western witchgrass

HABITAT/RANGE:

Moist to dry shores, beaches, open woods, meadows and bogs in the lowland and montane zones; frequent in S BC to 53° N and occasionally much farther north in association with hot springs; E disjunctly to PQ and NS and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from fibrous roots, greyish-green; stems simple in spring, slightly to repeatedly branched and often prostrate-spreading in late summer, pimpled and soft-hairy, up to 50 cm tall.

Leaves: Sheaths open; basal leaves different from the stem leaves, forming a winter rosette; blades densely long-hairy or short soft-hairy to smooth above or with only minute, blistery hairs on the margins, the upper blades of the spring stems larger than the basal, 5-12 mm wide, those of the branches reduced; nodes usually with a ring of spreading hairs subtended by a smooth band; ligules 2.5-5 mm long.

Flowers: Inflorescence an open panicle, 3-9 (11) cm long and about as wide, the branches rough short-hairy, erect; spikelets 2-flowered, elliptical to egg-shaped, more or less short soft-hairy, about 1.5-2 mm long, the lower florets sterile, those on the branches slightly smaller and tending to be closed, self-fertilizing; lower glumes 1-nerved, sharp-pointed, rounded or sometimes irregular, about 0.5 mm long, the upper glumes short soft-hairy throughout, 7- to 9-nerved, rounded or blunt at the tips, about as long as the fruits at maturity; sterile lemmas short soft-hairy throughout, 7- to 9-nerved, rounded at the tips, about as long as upper glumes; fertile lemmas much hardened and faintly nerved; lodicules about 0.3 mm long, fan-shaped.

Dichanthelium oligosanthes **(J.A. Schultes) Gould var. *scribnerianum* (Nash) Gould** (*Panicum oligosanthes* J.A. Schult. var. *scribnerianum* [Nash] Fernald, *P. scribnerianum* Nash)

Scribner's witchgrass

HABITAT/RANGE:

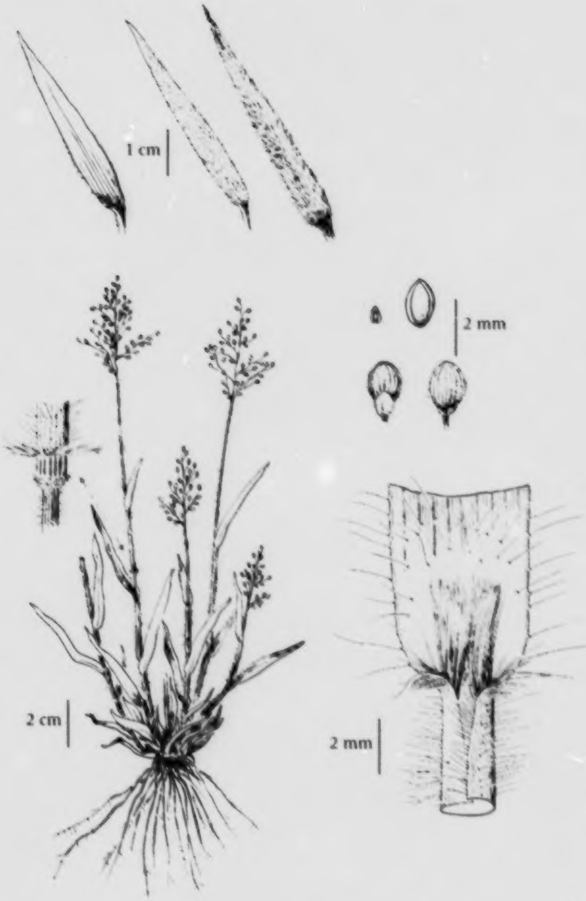
Dry open sandy flats, gravelly knolls and rocky bluffs in the lowland, steppe and montane zones; frequent in SW and SC BC north to 51° N; E to ON and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from fibrous roots; stems simple in spring with terminal panicles, becoming branched in late summer with axillary panicles, more or less pimply and soft-hairy, 15-50 cm tall.

Leaves: Sheaths open; basal leaves different from the stem leaves, forming a winter rosette; blades hairy below, smooth above, hairs of margins with minutely blistery base, the upper blades larger than the basal, 5-15 mm wide; ligules 1-1.5 mm long.

Flowers: Inflorescence an open panicle, 3-8 cm long, the late summer axillary panicles often with closed, self-fertilizing florets; spikelets 2-flowered, more or less short soft-hairy, 2.7-3.2 mm long, the first florets sterile; lower glumes 1-nerved, about 1.5 mm long, the rest of the spikelet abruptly narrowed to a hardened, cuplike base 0.6-0.8 mm long, the upper glumes short soft-hairy throughout or sometimes smooth, 9- to 11-nerved, rounded at the tips, barely exceeding the fertile florets; sterile lemmas short soft-hairy throughout or sometimes smooth, 9- to 11-nerved, rounded at the tips, barely exceeding the fertile florets; fertile lemmas much-hardened and faintly-nerved; lodicules 0.6-0.7 mm long, tubular-fan-shaped.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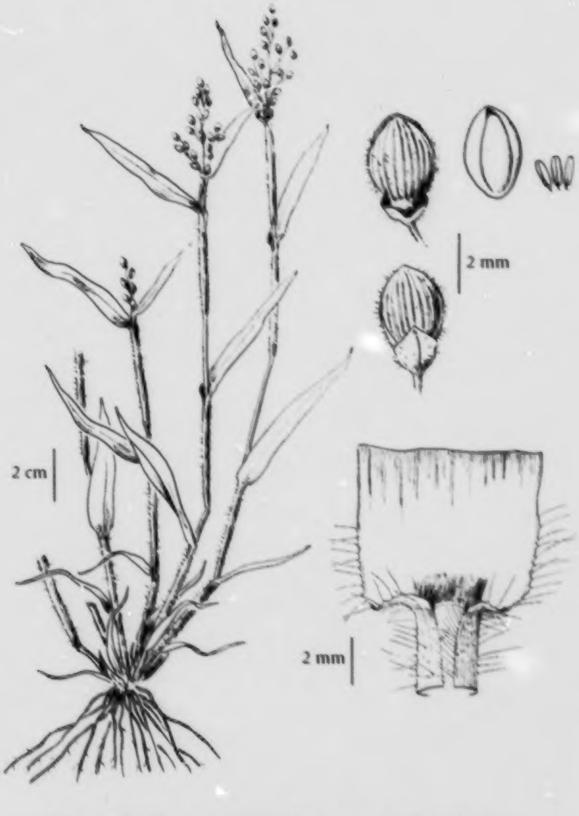
Dichanthelium acuminatum var. *fasciculatum*



Dichanthelium oligosanthes var. *scribnerianum*

DIGITARIA

1. Sheaths and collars strongly blistered and stiff-hairy; upper glumes about 2 mm long, 2/3 the length of the pale greenish-brown, fertile lemmas .... *D. sanguinalis*

1. Sheaths and collars smooth or nearly so; upper glumes 2-2.5 mm long, about equalling the dark brownish or dark purplish, fertile lemmas .... *D. ischaemum*

***Digitaria ischaemum* (Schreb.) Schreb. *ex* Muhl.**

smooth crabgrass

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland zone; infrequent in SW BC (lower Fraser Valley), rare on S Vancouver Island; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots, tending to root at the nodes; stems hollow, erect, spreading, smooth or rarely slightly soft-hairy near the nodes, 10-60 cm tall.

Leaves: Sheaths and collars smooth or nearly so; blades 2-4 (6) mm wide, flat, smooth to slightly rough short-hairy, sometimes with a few more or less minutely blistery hairs near the base, 2-4 mm long, the margins turned upward at the base and fused with the ligules; ligules 1-2 mm long, membranous, blunt, the margins nearly entire.

Flowers: Inflorescence of (2) 3 to 6, fingerlike, linear racemes 3-7 (10) cm long, the spikelets mostly paired and in 2 rows on 1 side of flattened and 3-angled rachises; spikelets 2-flowered, but the lower flowers sterile, 1 spikelet short-stalked, the other nearly unstalked; lower glumes translucent, more or less semi-circular, barely 0.3 mm long, upper glumes and sterile lemmas about equalling the fertile lemmas, 2-2.5 mm long, slightly hairy; lemmas dark brownish or dark purplish.

***Digitaria sanguinalis* (L.) Scop.**

hairy crabgrass

HABITAT/RANGE:

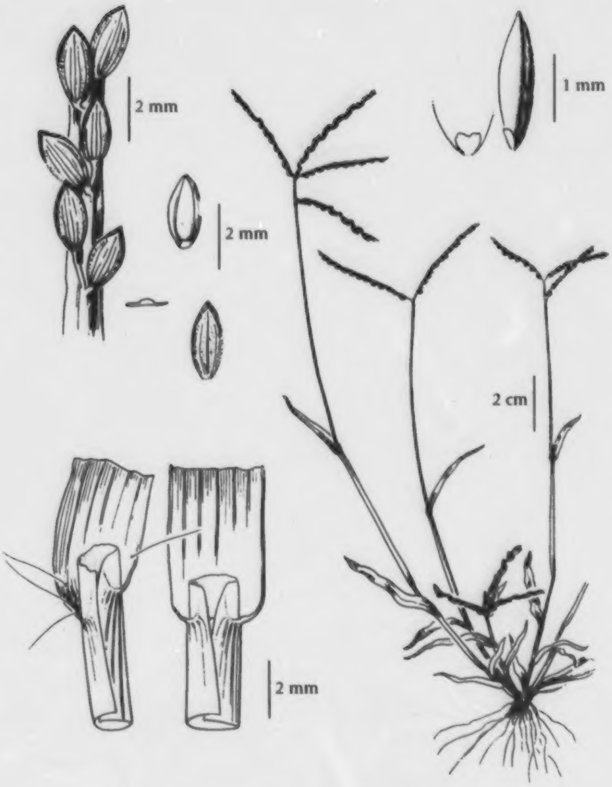
Mesic to dry lawns, fields, roadsides and waste areas in the lowland, steppe and montane zones; infrequent in SW and SC BC; introduced from Eurasia.

DESCRIPTION:

General: Annual, freely branching grass from fibrous roots, also rooting at the nodes, forming patches often over 1 m wide; stems hollow, often prostrate to ascending, 20-60 cm long/tall.

Leaves: Sheaths and collars strongly stiff-hairy, the hairs minutely blistery at the bases, often 2-3 (5) mm long; blades 4-6 (10) mm wide, flat, at least stiff-hairy towards the base, usually rough on the lower surface, the free margins narrowed gradually and ultimately turning upward on the ligules as slight ridges; ligules 1.5-2 mm long, membranous, blunt, the margins irregularly jagged.

Flowers: Inflorescence of several, fingerlike, linear racemes in 1 or 2 whorls, 5-12 cm long, the spikelets mostly paired and in 2 rows on 1 side of flattened and 3-angled rachises; spikelets 2-flowered, but the lower flowers sterile, 1 spikelet short-stalked, the other nearly unstalked; glumes fringed with short hairs, the lower glumes about 0.5 mm long, the upper glumes about 2 mm long; sterile lemmas equalling the fertile lemmas, about 3 mm long, appressed-hairy, the lateral nerves prominent; lemmas pale greenish-brown.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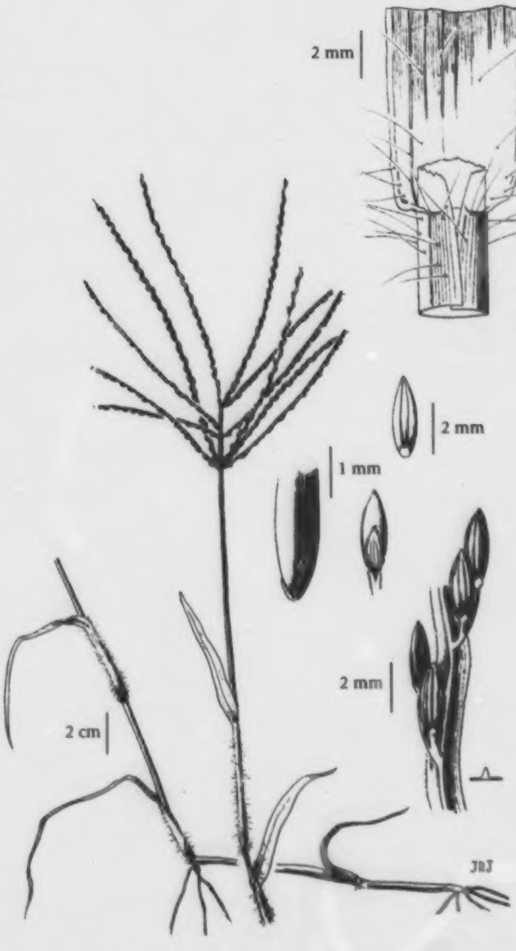
Digitaria ischaemum


2 mm
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2 mm
2 cm
JDJ

Digitaria sanguinalis

DISTICHLIS

Distichlis spicata **(L.) Greene** (*D. spicata* vars. *borealis* [J. Presl] Beetle and *stolonifera* Beetle = var. *spicata*; *D. stricta* [Torr.] Rydb., and *D. dentata* Rydb. = var. *stricta*)

alkali saltgrass (var. *stricta*) and **seashore saltgrass** (var. *spicata*)

HABITAT/RANGE:

Sandy lake shores and moist alkaline meadows in the steppe zone (var. *stricta*) or coastal beaches and salt marshes (var. *spicata*); var. *spicata* – frequent in SW BC; var. *stricta* – common in SC BC; var. *stricta* – E to SK and S to MO, OK, TX and CA; var. *spicata* – S to CA, disjunct to E coast of North America.

DESCRIPTION:

General: Perennial, dioecious grass from rhizomes, the rhizomes extensive, sharp-tipped, sometimes more or less stoloniferous; stems solid, sometimes decumbent, 10-40 cm tall/long.

Leaves: Sheaths smooth except on the summits of the margins, the collars with or without long hairs; blades 2-4 mm wide, mostly in-rolled, smooth or soft-hairy to stiff-hairy on the upper surface; ligules about 0.5 mm long, the margins irregularly jagged, more or less fringed with coarse hairs, the fronts of the collars with many hairs, 0.5-3 mm long.

Flowers: Inflorescence a compact to loose panicle 3-8 cm long, the spikelets and their stalks obvious or the stalks not obvious; spikelets few- to many-flowered, the male ones yellowish, 7- to 16-flowered, strongly compressed, the female more greenish, 5- to 9-flowered; glumes shorter than the lower lemmas, unequal, the lower ones about 3.5 mm long, the upper about 5 mm long; lemmas membranous (male spikelets) or more or less firm-papery (female spikelets), about 3-6 mm long, the female lemmas harder.

Notes: Two varieties occur in BC:

1. Long hairs usually present on the collars as well as at the summits of the sheath margins; plants of the steppe zone .... var. *stricta* (Torr.) Beetle

1. Hairs usually lacking on the collars, present only on the summits of the sheath margins; plants maritime .... var. *spicata*

ECHINOCHLOA

Echinochloa crusgalli **(L.) Beauv.**

large barnyard-grass

HABITAT/RANGE:

Moist to dry ditches, disturbed sites, clearings and fields in the lowland, steppe and montane zones; common in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems pith-filled or hollow, decumbent to erect, the nodes smooth, (30) 60-160 cm tall.

Leaves: Sheaths open, more or less compressed; blades 4-16 mm wide; ligules absent.

Flowers: Inflorescence a stiff panicle 5-12 cm long, the branches spreading to erect, usually at least 3 cm long, the spikelets borne singly or in clusters along 1 side of the branches; spikelets 3-4 mm long, 2-flowered, but the lower flowers sterile; upper glumes pointed to long-pointed, unawned; sterile lemmas equalling the upper glumes, long-pointed and bristle-tipped to awn-bearing, the awns up to 30 mm long; lemmas and paleas hardened, abruptly pointed to long-pointed, unawned.

ELYMUS[12]

1. Spikelets solitary at each node (occasionally paired at the lowest nodes); glumes and lemmas awned or unawned; plants tufted to strongly rhizomatous.
    2. Anthers 1-3.5 mm long; plants tufted, with short or no rhizomes.
        3. Glumes 1/2 as long as the spikelets; glume margins (transparent) widest at the tips .... *E. alaskanus*

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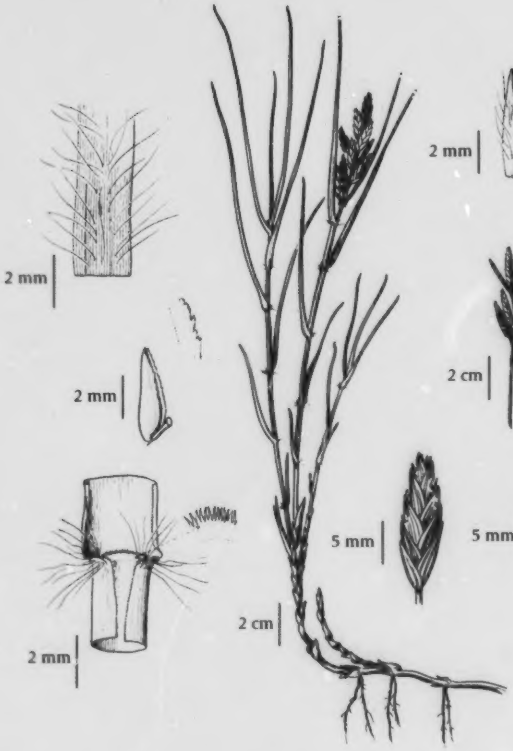
[12] Contributed by H. Stewart and M.E. Barkworth.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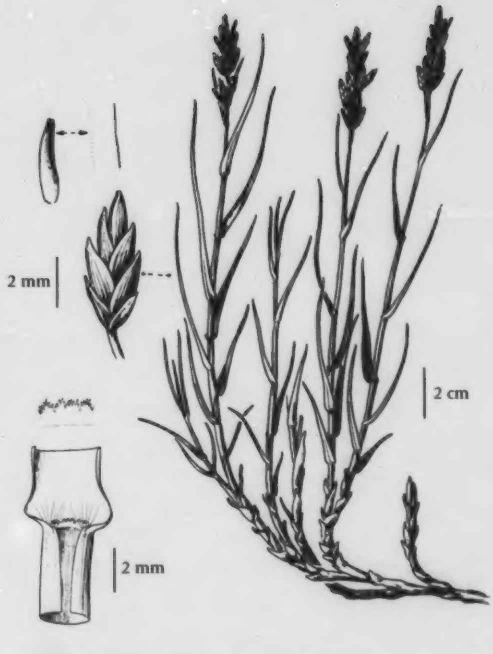
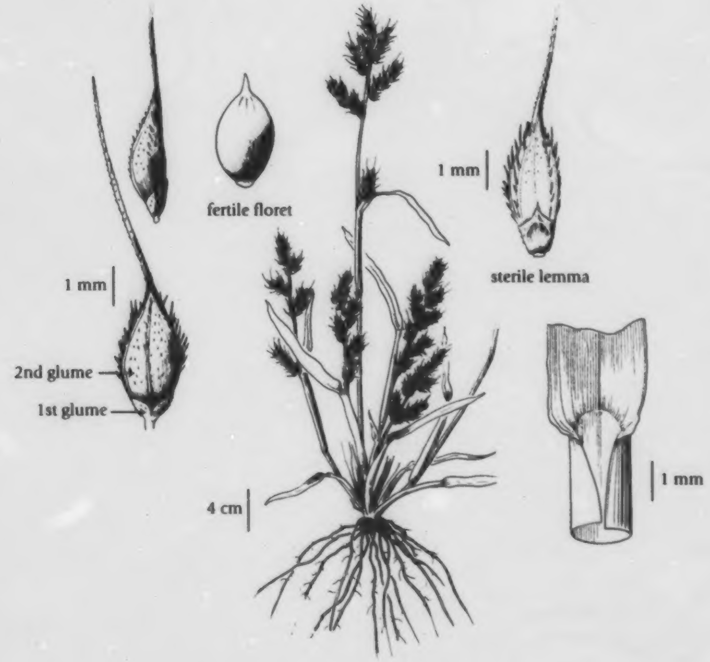


Distichlis spicata var. spicata

Distichlis spicata var. stricta


fertile floret
1 mm
sterile lemma
1 mm
2nd glume
1st glume
1 mm
4 cm

Echinochloa crusgalli

3. Glumes almost as long as the spikelets; glume margins widest at the sides.

4. Leaves distributed equally along the culm; blades lax; glumes rough with midnerves extending into awns or awnlike tips ..... *E. glaucus*

4. Leaves concentrated at the base of the culms; blades stiff and ascending; glume veins smooth, the midnerves extending into pointed tips or short awns ..... *E. trachycaulus*

2. Anthers 3-7 mm long; plants tufted or strongly rhizomatous.

5. Glumes strongly keeled, the keels with well-developed teeth, especially towards the tips ..... *E. repens*

5. Glumes without keels or weakly keeled, the keels with numerous small teeth or entire.

6. Lemmas with diverging awns ..... *E. albicans*

6. Lemmas acute or with short tips, but never with diverging awns.

7. Palea keels with few to many long straight hairs below the midsection; glumes and lemmas distinctly hairy ..... *E. calderi*

7. Palea keels naked below the midsection, rough above; glumes usually smooth; lemmas smooth or hairy ..... *E. lanceolatus*

1. Spikelets 2, 3 or 5 at each node; glumes and lemmas awned; plants tufted or occasionally with short rhizomes.

8. Rachis falling apart at maturity ..... *E. elymoides*

8. Rachis not falling apart at maturity.

9. Culm nodes mostly covered, glumes without transparent margins; awns always curving outward, never straight ..... *E. canadensis*

9. Culm nodes exposed, glumes with transparent margins; awns curving outward or straight.

10. Spikes straight; lemma awns usually straight; leaves blue-green ..... *E. glaucus*

10. Spikes drooping or nodding; lemma awns curved outward; leaves green.

11. Spike tips noticeably drooping; anthers 0.9–1.7 mm long ..... *E. sibiricus*

11. Spike tips erect to slightly nodding; anthers 2-3.5 mm long ..... *E. hirsutus*

Elymus alaskanus **(Scribn. & Merr.) A. Löve ssp. *latiglumis* (Scribn. & J. G. Sm.) A. Löve** (*Agropyron alaskanum* Scribn. & Merr., *A. boreale* [Turcz.] Drobov *ex* Polunin ssp. *hyperarctium* [Polunin] Melderis, *A. caninum* var. *latiglume* [Scribn. & J.G. Sm.] Pease & Moore, *A. latiglume* [Scribn. & J.G. Sm.] Rydb., *A. violaceum* [Hornem.] Lange)

Alaskan wildrye

HABITAT/RANGE:

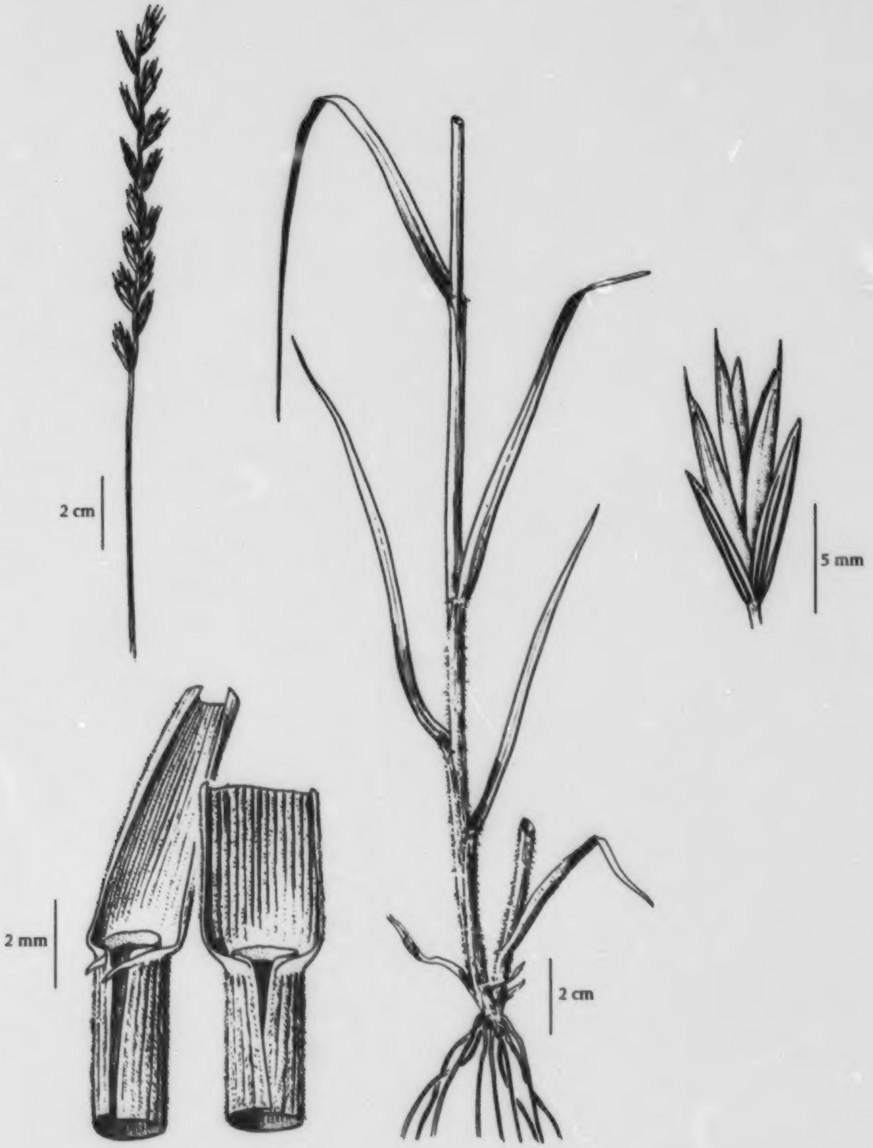
Mesic to dry grasslands, meadows, forest openings, rocky slopes and ridges in all vegetation zones; common throughout BC; N to AK, YT and NT, E to ON and S to NM, ID, UT and WA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots or short rhizomes; stems 15-90 cm tall, sometimes decumbent at the base, the nodes exposed, smooth.

Leaves: Sheaths smooth, rough or finely hairy; blades 3-7 mm wide, flat; ligules membranous, up to 0.5 mm long; ear-shaped lobes at the leaf-bases absent or if present, up to 0.5 mm long.

Flowers: Inflorescence a spike, 6-14 cm long, with 1 spikelet per node; spikelets 9-15 mm long, usually overlapping with 3 to 6 florets; glumes 5-10 mm long, 3/4 as long as the lemmas, smooth to rough, awnless or short-awned; lemmas 8-11 mm long, smooth or hairy throughout, unawned or awned, the awns up to 7 mm long; anthers 1-2 mm long.


2 cm
5 mm
2 mm
2 cm

Elymus alaskanus ssp. *latiglumis*

***Elymus* x *albicans* (Scribn. & J.G. Sm.) Á. Löve** (*E. lanceolatus* [Scribn. & J.G. Sm.] Gould ssp. *albicans* [Scribn. & J.G. Sm.] A. Löve; *Agropyron albicans* Scribn. & J.G. Sm.)

Montana wildrye

HABITAT/RANGE:

Dry alkaline flats, sand dunes, gravelly sites and open forests in the steppe and montane zones; common in NE, SC and SE BC; E to AB and S to NE, CO, UT, ID and WA.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems 40-100 cm tall, the nodes exposed.

Leaves: Sheaths smooth to hairy; blades 1-3 mm wide, usually in-rolled, with rough upper surfaces, ear-shaped lobes usually present at the leaf-bases, up to 0.8 mm long; ligules up to 0.2-0.5 mm long, fringed with hairs.

Flowers: Inflorescence a spike 4-14 cm long, 0.3-0.8 cm wide, erect, with 1 spikelet per node; spikelets 10-18 mm long, 1.5-2 times longer than the middle internodes, with 3 to 7 florets; glumes 0.5-0.8 times the length of the lemmas, smooth to rough, weakly keeled, sharply pointed or shortly awned at the tips; lemmas 7.5-9.5 mm long, smooth or densely hairy, the awns 4-12 mm long, strongly curved outward; anthers 3-5 mm long.

Notes: This taxon is a hybrid between *Pseudoroegneria spicata* and *Elymus lanceolatus* (M. Barkworth, pers. comm.)

***Elymus calderi* Barkw.** (*Agropyron yukonense auct. non* Scribn. & Merr., *E.* x *yukonensis auct. non* [Scribn. & Merr.] A. Löve, *E. lanceolatus* ssp. *yukonensis auct. non* [Scribn. & Merr.] A. Löve)

Calder's wildrye

HABITAT/RANGE:

Mesic to dry, sometimes alkaline, sandy or gravelly river terraces, floodplains and grassy slopes in the montane zone; rare in N BC, known only from Liard Hot Springs; N to AK and YT.

DESCRIPTION:

General: Perennial grass from rhizomes; stems 20-75 cm tall, erect, the nodes exposed, smooth.

Leaves: Sheaths smooth; blades 1.5-3 mm wide, flat or in-rolled when dry, mostly basal; ligules 0.5 mm long, finely jagged-edged; ear-shaped lobes at the leaf-bases 0.5-1 mm long.

Flowers: Inflorescence a spike 4-10 cm long, erect; spikelets solitary at each node; glumes lanceolate, flat, tapered from middle to sharp point, 5-7 mm long, densely hairy; lemmas 8-11 mm long, densely hairy with hairs less than 1 mm long, tips sharply pointed; paleas keeled, with few to many hairs below, rough above; anthers 2.5-4 (5) mm long.

Notes: *Elymus* x *yukonensis*, as represented by the type specimen, is probably a hybrid and is infrequent (M. Barkworth, pers. comm.) in AK and YT. The more common taxon in AK and YT, *E. calderi*, has a different type and thus most plants have been incorrectly named *E. yukonensis* or *Agropyron yukonense*.

***Elymus canadensis* L.** (*E. brachystachys* Scribn. & Ball.)

Canada wildrye

HABITAT/RANGE:

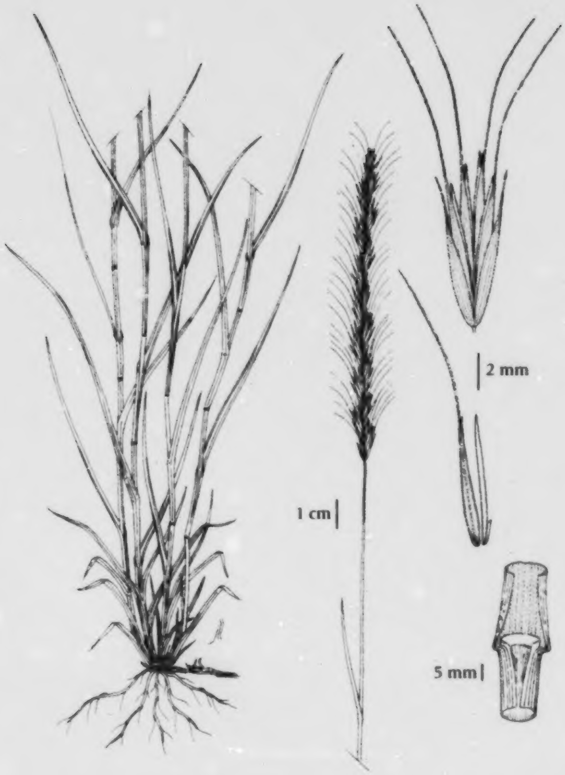
Moist to dry sandy riverbars and sandy or gravelly meadows in the steppe and montane zones; infrequent in SC and SE BC; N to S AK and NT, E to NB and NS and S to ME, MA, PA, SC, TN, AR, TX, NM, AZ and CA.

DESCRIPTION:

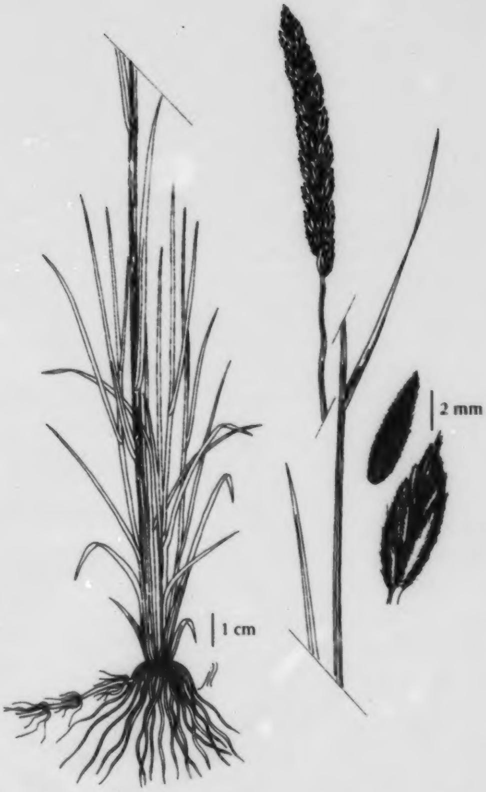
General: Perennial, loosely tufted grass from fibrous roots, rarely from short rhizomes; stems 60-150 cm tall, sometimes decumbent at the base.

Leaves: Sheaths smooth to rough or fine-hairy, often reddish-brown; blades 4-15 mm wide, flat to somewhat in-rolled, smooth to rough, rarely hairy, ear-shaped lobes at the leaf-bases 1.5-4 mm long, brown or purplish-black; ligules membranous, up to 1 (2) mm long.

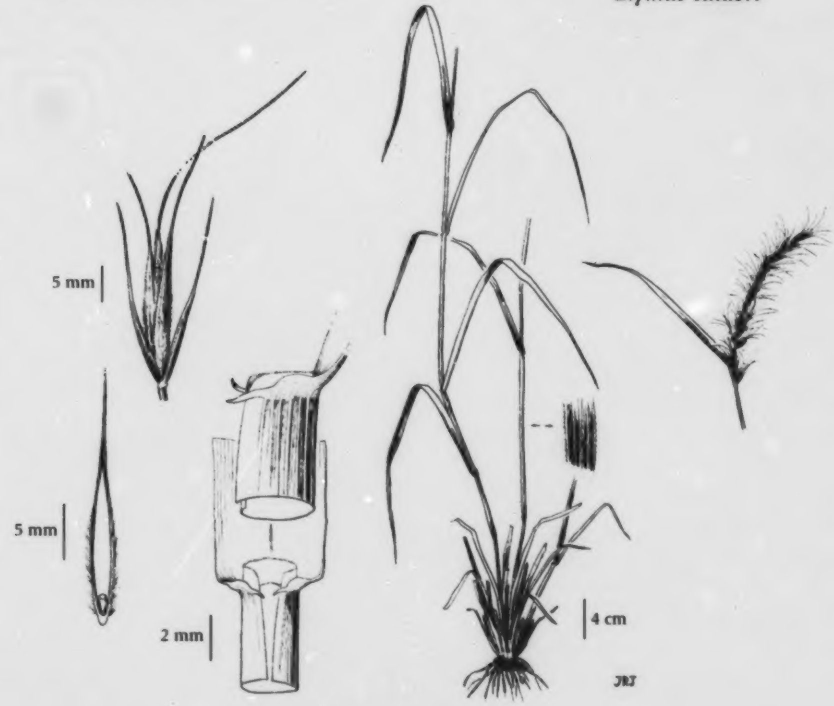
Flowers: Inflorescence a spike 6-30 cm long, 3-7 cm wide, usually nodding, with 1 to 3 (5) spikelets per node; spikelets 12-20 mm long, with 3 to 6 florets; glumes 6-13 mm long, awned, the awns 6-25 mm long, the awns straight or curving; lemmas 8-15 mm long, smooth or hairy throughout, awned, the awns (10) 15-40 (50) mm long, strongly curving outward; anthers 2-3.5 mm long.



Elymus x albicans



Elymus calderi


5 mm
5 mm
2 mm
4 cm
JRJ

Elymus canadensis

Elymus elymoides **(Raf.) Swezey** (*Sitanion hystrix* [Nutt.] J.G. Sm.)
squirreltail grass; squirreltail

HABITAT/RANGE:

Dry rocky slopes, roadsides, meadows and scree slopes in the steppe to alpine zones; frequent in S BC in and E of the Coast-Cascade Mountains; ssp. *californicus* – S to WY, UT, NV and CA; ssp. *elymoides* – E to SK and S to OK, CO, AZ, MX and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 8-65 cm tall, erect or slightly bent at the base, the nodes mostly covered.

Leaves: Sheaths smooth to rough or white-hairy; blades (1) 2-4 mm wide, often in-rolled, rough or hairy above, smooth to rough below, ear-shaped lobes at the leaf-bases up to 1 mm long, often purplish; ligules up to 1 mm long, smooth-edged or ragged.

Flowers: Inflorescence a spike 3-15 cm long, 5-15 cm wide, sometimes partially included in the upper leaf sheath, erect to nodding, with (1) 2 or 3 spikelets per node; spikelets 10-20 mm long, with 1 to 5 fertile florets and 1 or 2 sterile florets, the sterile florets glume-like, smooth, with purplish awns; glumes 5-10 mm long, awned, the awns 15-125 mm long, rough and curving, bristlelike; lemmas 6-12 mm long, smooth or hairy throughout, awned, the awns 25-105 mm long, curving near the base, the two lateral nerves also extending into bristles up to 10 mm long; anthers 0.9-2.2 mm long.

Notes: Two subspecies occur in BC:

1. All glumes entire, their awns usually shorter than the lemma awns .... ssp. *californicus* Barkw.
1. At least one glume at most nodes bifid, their awns longer than the lemma awns .... ssp. *elymoides*

The hybrid between *E. elymoides* and *E. trachycaulus*, *E.* x *saundersii* (Vasey) A.S. Hitchc. (*Agropyron* x *saundersii* Vasey) is not treated in this manual. It is not a significant taxon and rarely occurs in BC.

Elymus glaucus **Buckl.** (*E. glaucus* var. *breviaristatus* Davy = ssp. *glaucus*; *E. virescens* Piper = ssp. *virescens*)
blue wildrye

HABITAT/RANGE:

Moist to dry slopes, meadows and open forests in the lowland and montane to subalpine zones; ssp. *glaucus* – common in S BC, less frequent north of 55° N; ssp. *virescens* – infrequent in coastal BC, rare E of the Coast-Cascade Mountains; ssp. *glaucus* – N to SE AK and YT, E to ON and S to NY, IL, AR, TX, NM, AZ and CA; ssp. *virescens* – S to CA.

DESCRIPTION:

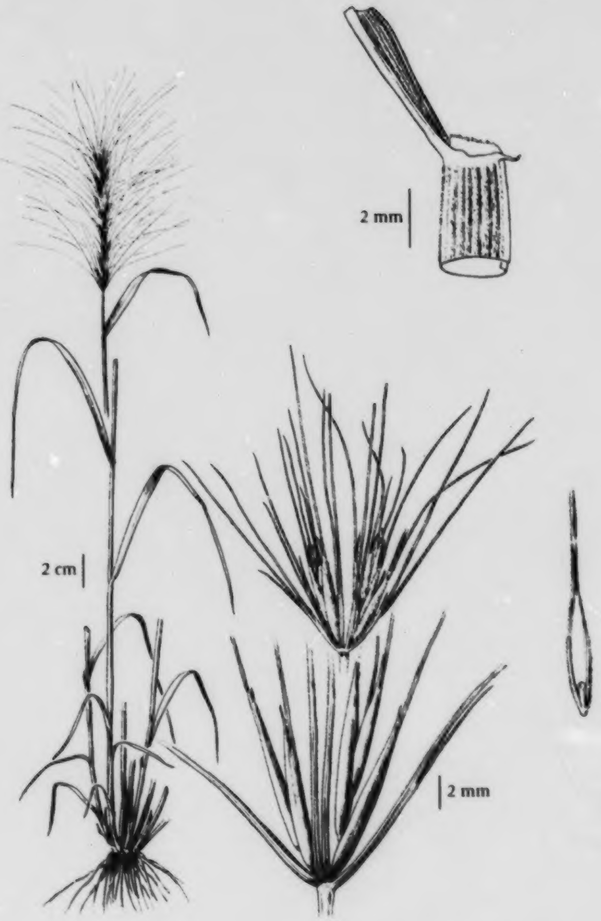
General: Perennial, bluish, tufted grass from fibrous roots or short rhizomes; stems 30-180 cm tall, erect or slightly decumbent at the base, the nodes exposed and often covered with dense short hairs.

Leaves: Sheaths smooth to rough, white-hairy close to the base, often purplish at the stem-base; blades 4-13 mm wide, lax, flat or slightly in-rolled, bluish-green, rough on the nerves, sometimes hairy, ear-shaped lobes at the leaf-bases up to 2.5 mm long, often purple; ligules up to 1 mm long, entire or ragged.

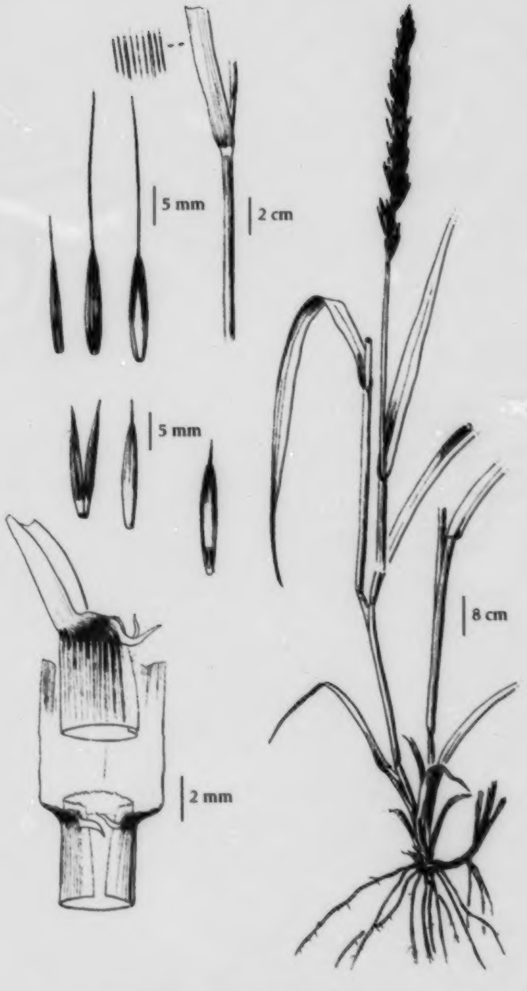
Flowers: Inflorescence a spike 5-21 cm long, 0.5-2 cm wide, erect to slightly nodding, rarely pendent, (1) 2 to 3 spikelets per node; spikelets 8-25 mm long, purplish, with bases often overlapping, with 2 to 4 (6) fertile florets; glumes 9-14 mm long, unawned or awned, the awns 1-5 mm long; lemmas 9-14 mm long, smooth to short-hairy at least on the nerves, the awns 1-25 mm long, straight to slightly curved; anthers 1.5-3.5 mm long.

Notes: Two subspecies occur in BC:

1. Lemmas awnless or awned, the awns less than 5 mm long .... ssp. *virescens* (Piper) Gould
1. Lemmas awned, the awns greater than 5 mm long .... ssp. *glaucus*



Elymus elymoides ssp. *elymoides*


5 mm
2 cm
5 mm
8 cm
2 mm

Elymus glaucus ssp. *glaucus*

***Elymus hirsutus* J. Presl**

hairy wildrye

HABITAT/RANGE:

Moist meadows, streamsides and open forests in all vegetation zones; frequent in coastal SW BC, infrequent in SC BC, rare in SE BC; N to AK and S to NW OR.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots or short rhizomes, the tufts small; stems 40-120 cm tall, usually decumbent at the base, the nodes exposed, occasionally with dense short hairs pointing downward.

Leaves: Sheaths smooth to rough, or occasionally with dense, short, purplish hairs; blades 4-12 mm wide, lax, flat, deep green, dense-hairy above; ear-shaped lobes sometimes lacking at the leaf-bases, if present then up to 1.5 mm long; ligules finely fringed, up to 1 mm long.

Flowers: Inflorescence a spike 6-20 cm long, 0.5-2 cm wide, nodding or drooping, with (1) 2 or 3 spikelets per node; spikelets 12-20 mm long, overlapping, sometimes purplish, with 2 to 4 (7) fertile florets; glumes 7-10 (11) mm long, the margins transparent, awned, the awns 1-10 mm long; lemmas 7-12 mm long, with short hairs on the nerves and along the edges, otherwise smooth to rough throughout, awned, the awns 8-30 mm long, usually noticeably curving outward; anthers 2-3.5 mm long.

Elymus lanceolatus* (Scribn. & J.G. Sm.) Gould ssp. *lanceolatus (*Agropyron dasystachyum* [Hook.] Scribn., *A. riparium* Scribn. & J.G. Sm.)

thickspike wildrye

HABITAT/RANGE:

Dry alkaline flats, sand dunes, gravelly sites and open forests in the steppe and montane zones; frequent in NE, SC and SE BC; E to AB and S to MI, IL, NE, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems 22-130 cm tall, erect, the nodes exposed, smooth.

Leaves: Sheaths smooth to hairy; blades 2-6 mm wide, mostly towards the base of the stems, in-rolled, the undersides smooth, the upper surfaces rough; ear-shaped lobes 1-1.5 mm long, usually present on the lower leaves; ligules 0.1-0.4 mm long, the edges ragged or fringed with fine hairs.

Flowers: Inflorescence a spike 3.5-22 cm long, 0.7-1 cm wide, erect; spikelets 8-25 mm long, usually with 1 spikelet per node; spikelets with 3 to 11 florets; glumes unequal, 5-9 mm long, 1/2 to 3/4 the length of the first lemmas, smooth or hairy, weakly keeled, pointed to shortly-awned; lemmas 7-11 mm long, smooth or more often hairy to densely hairy with hairs less than 1 mm long, sharp-pointed to awn-tipped; anthers 2.5-5 mm long.

***Elymus repens* (L.) Gould** (*Agropyron repens* [L.] Beauv., *Elytrigia repens* [L.] Desv. *ex* B.D. Jackson)

quackgrass; creeping wildrye

HABITAT/RANGE:

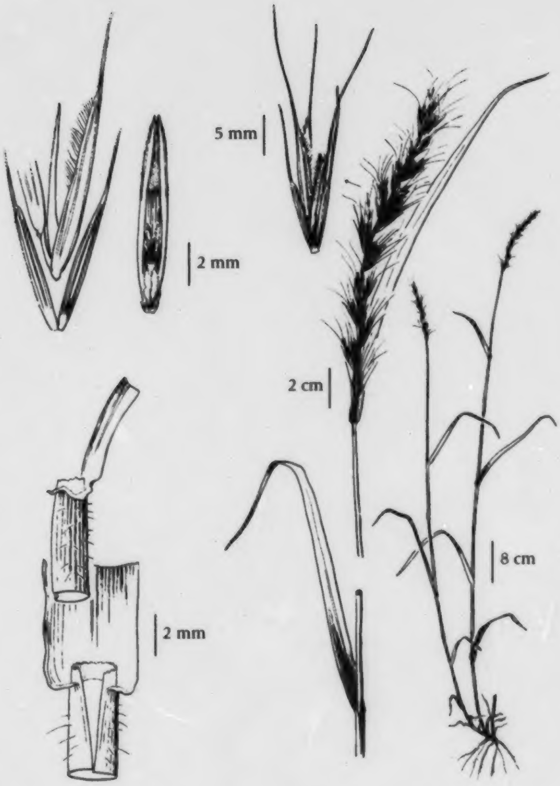
Mesic to dry roadsides, fields, gardens and disturbed sites in the lowland, steppe and montane zones; common in S BC south of 51° N, less frequent N to 55° N; introduced from Eurasia.

DESCRIPTION:

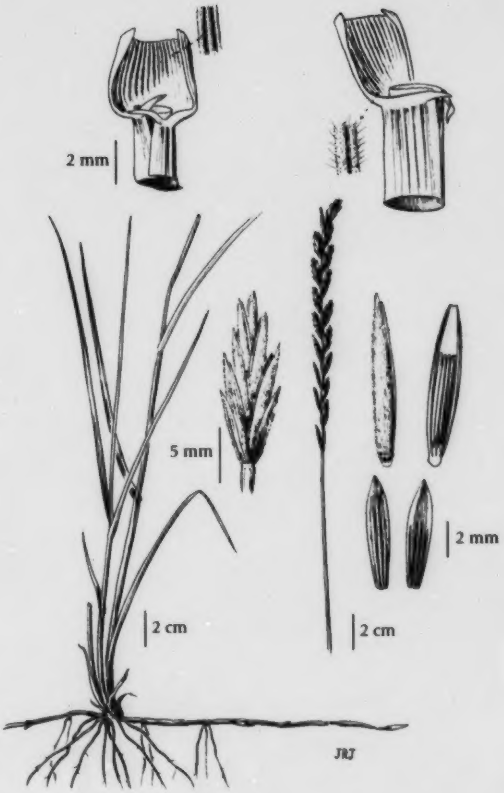
General: Perennial grass from extensive rhizomes; stems erect to decumbent, 50-100 cm tall/long, the nodes exposed, smooth.

Leaves: Sheaths smooth or hairy; blades 6-10 mm wide, flat, the undersides smooth, the upper surfaces rough along the nerves, ear-shaped lobes at the leaf-bases 0.3-1 mm long; ligules 0.25-1.5 mm long, membranous.

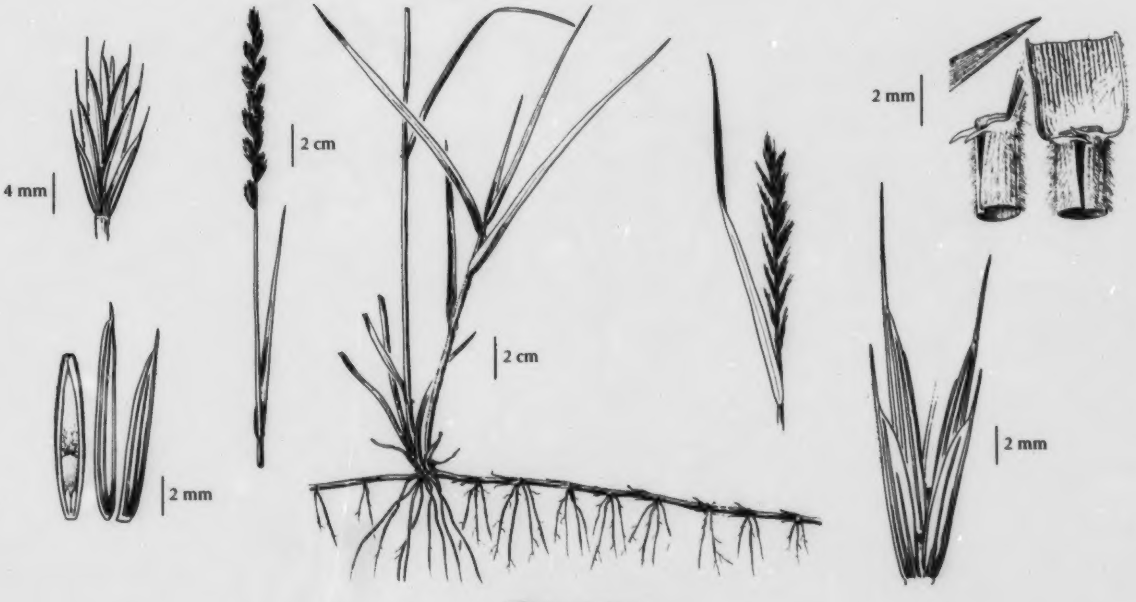
Flowers: Inflorescence a spike 5-15 cm long, 5-10 mm wide, erect, with 1 spikelet per node; spikelets 10-27 mm long, more than 2 times as long as the internodes, with 4 to 7 florets; glumes unequal, 7-10 mm long, with transparent edges along the upper 1/2, the tips pointed; lemmas 8-10.4 mm long, awnless or awned, the awns 0.2-3.8 (10) mm long; anthers 4-7 mm long.


5 mm
2 mm
2 cm
8 cm
2 mm

Elymus hirsutus


2 mm
5 mm
2 mm
2 cm
2 cm
JRJ

Elymus lanceolatus ssp. lanceolatus


4 mm
2 cm
2 mm
2 cm
2 mm
2 mm

Elymus repens

***Elymus sibiricus* L.**

Siberian wildrye

Habitat/Range:

Mesic sandy or gravelly river bars and floodplains in the montane zone; rare in N BC; N to AK, YT and NT.

Description:

General: Perennial tufted herb, sometimes with short, waxy rhizomes; stems 40-150 cm long, erect but sometimes slightly bent at the base, the nodes exposed, smooth.

Leaves: Sheaths smooth to finely hairy, often purplish; blades 5-14 mm wide, drooping, usually finely hairy to rough above; ligules up to 1 mm long; ear-shaped lobes at the leaf-bases up to 1 mm long or absent.

Flowers: Inflorescence a spike, 7-30 cm long, nodding at the tip; spikelets (1) 2 (3) per node, sometimes solitary toward tip, 4 to 5 florets per spikelet; glumes narrowly lanceolate, 3-8 mm long, smooth to rough on the veins, the margins thin or transparent, awned, the awns 1-6 mm long; lemmas 8-13 mm long, rough to short-haired, awned, the awns 10-25 mm long, usually curving outward near the base; anthers 0.9-1.7 mm long.

***Elymus trachycaulus* (Link) Gould *ex* Shinners** (*Agropyron* x *brevifolium* Scribn., *A. caninum* [L.] Beauv. ssp. *majus* [Vasey] C.L. Hitchc. vars. *andinum* [Scribn. & J.G. Sm.] Pease & Moore and *unilaterale* [Vasey] C.L. Hitchc., *A. pauciflorum* vars. *glaucum* [Pease & Moore] Taylor & MacBryde and *unilaterale* [Vasey] Taylor & MacBryde, *A. subsecundum* [Link] A.S. Hitchc. and *Elymus pauciflorus* [Schwein.] Gould var. *subsecundus* Gould = ssp. *subsecundus; Agropyron novae-angliae* Scribn. *ex* Braun *et al.*, *A. pauciflorum* [Schwein.] A.S. Hitchc. var. *novae-angliae* [Scribn. *ex* Braun *et al.*] Taylor & MacBryde, *A. caninum auct. non* [L.] Beauv., *A. caninum* ssp. *majus* [Vasey] C. L. Hitchcock var. *majus*, *A. pauciflorum* A. S. Hitchcock *ex* Silveus, *A. scribneri* Vasey, *A. trachycaulum* Link and *Elymus scribneri* [Vasey] M.E. Jones = ssp. *trachycaulus*)

slender wheatgrass

Habitat/Range:

Mesic to dry grasslands, meadows, forest openings and rocky ridges and slopes in all vegetation zones; spp. *subsecundus* – frequent in S BC, less frequent northward; ssp. *trachycaulus* – common throughout BC; N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, IN, MO, TX, NM, AZ, MX and CA.

Description:

General: Perennial, tufted grass from fibrous roots, sometimes with short rhizomes; stems 30-120 cm tall, erect, the nodes exposed, smooth.

Leaves: Sheaths smooth or sometimes hairy; blades 2-5 mm wide, flat to in-rolled, somewhat concentrated around the base of the stems, ear-shaped lobes lacking at the leaf-bases or if present, to 0.5 mm long; ligules up to 0.5 mm long, blunt, entire.

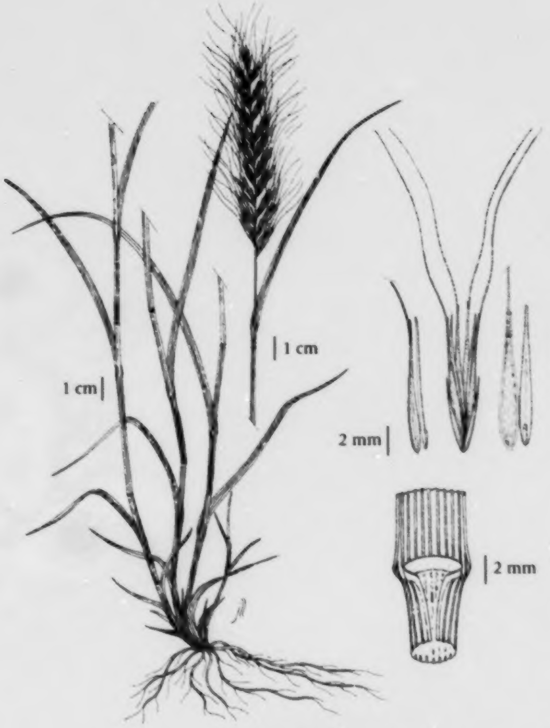
Flowers: Inflorescence spikelike, 4-25 cm long, 4-10 mm wide, with 1 spikelet per node; spikelets 9-16 mm long, 2 times as long as the internodes, with 3 to 5 (7) florets; glumes unequal, 6-12 mm long, 3/4 to as long as the lemmas, the tips pointed or shortly awned; lemmas 6-13 mm long, smooth near the base and rough above, the tips pointed to awned, the awns up to 40 mm long; anthers 0.8-3 mm long.

Notes: Two subspecies are recognized in BC:

1. Lemmas awned, the awns 15-40 mm long, longer than the bodies .... ssp. *subsecundus* (Link) Á. & D. Löve

1. Lemmas unawned or awned, the awns less than 13 mm long, shorter than the bodies .... ssp. *trachycaulus*

The hybrid *Elymus* x *macounii* Vasey (*Elyhordeum* x *macounii* [Vasey] Barkw. & D. R. Dewey, *Elymordeum* x *macounii* [Vasey] Barkw.) is sporadic in BC. It is mainly a hybrid between *E. trachycaulus* and *Hordeum jubatum*.


1 cm
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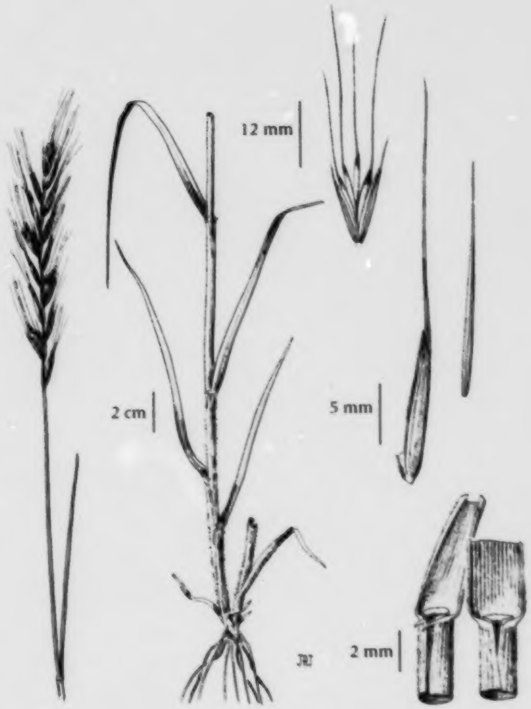
Elymus sibiricus


12 mm
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5 mm
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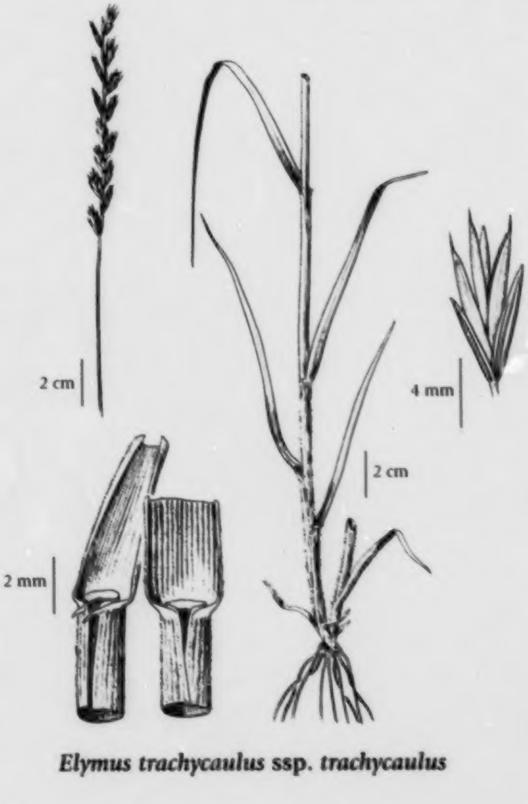
Elymus trachycaulus ssp. *subsecundus*


2 cm
4 mm
2 cm
2 mm

Elymus trachycaulus ssp. *trachycaulus*

ERAGROSTIS[13]

1. Leaf blade margins, spikelet stalks, and keels of lemmas and glumes with craterlike glands.
   2. Spikelets 2-4 mm wide at maturity, 10- to 40-flowered, commonly more than 11 mm long; lemmas (1.8) 2-2.8 mm long, bearing 2 to 5 conspicuous craterlike glands along the keels .... *E. cilianensis*
   2 Spikelets (1.1) 1.5-2.2 mm wide, 7- to 12- (20-) flowered, 4-7 (11) mm long; lemmas 1.3-2 (2.2) mm long, occasionally bearing 1 or 2 inconspicuous glands along the keels .... *E. minor*
1. Leaf blade margins, spikelet stalks and keels of lemmas and glumes without craterlike glands.
   3 Fruits (caryopses) with an evident groove on the upper surface (opposite the embryo), the surfaces lined, egg-shaped to rectangular-prismatic with one or both ends blunt .... *E. mexicana*
   3. Fruits (caryopses) not grooved on the upper surfaces, the surfaces mostly smooth, pear- to egg-shaped or prism-shaped with both ends rounded.
      4. Lower glumes more than 1/2 as long as the lowest lemmas, 0.5-1.1 (1.5) mm long; paleas persistent; panicle branches solitary or paired on the lowest 2 nodes .... *E. pectinacea*
      4. Lower glumes less than 1/2 as long as the lowest lemmas, 0.3-0.6 (0.8) mm long; paleas easily deciduous; panicle branches commonly whorled on the lowest 2 nodes .... *E. pilosa*

***Eragrostis cilianensis* (All.) Mosher** (*E. megastachya* [Koel.] Link)

stinkgrass

HABITAT/RANGE:

Moist to dry roadsides and sandy waste places in the lowland, steppe and montane zones; infrequent in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems erect to decumbent, 15-45 (65) cm tall/long.

Leaves: Sheaths smooth, occasionally with craterlike glands below the nodes, fringed with fine hairs at the summit, the hairs up to 5 mm long, the throats with hairs up to 2 mm long; blades (1) 5-20 cm long, (1) 3-5 (10) mm wide, flat to in-rolled, mostly smooth below, with craterlike glands along the margins, more or less rough above, occasionally hairy; ligules 0.4-0.8 mm long, fringed with fine hairs.

Flowers: Inflorescence a congested to open, cylindrical to egg-shaped panicle, (3) 5-16 (20) cm long, 2-8.5 cm wide, tapered from the base upward, the branches 0.4-5 cm long, appressed to spreading 20-80° from the stem axis; spikelets flattened, 6-20 mm long, 2-4 mm wide, 10- to 40-flowered, egg-shaped or lanceolate, greyish-green or translucent, the stalks with craterlike glands; glumes keeled, the keels with craterlike glands, nearly equal, 1.2-2.6 mm long, broadly egg-shaped to lanceolate, membranous, 1- or 3-nerved, the lower glumes 1.2-2 mm long, usually 1-nerved, the upper glumes 1.2-2.6 mm long, often 3-nerved; lemmas (1.8) 2-2.8 mm long, broadly egg-shaped, membranous, prominently nerved, the tips rounded to sharp-pointed, keeled, the keels with 2 to 5 craterlike glands; paleas 1.2-2.1 mm long, translucent, the tips rounded to sharp-pointed; stamens 3, anthers 0.2-0.5 mm long, yellow; caryopses 0.5-0.7 mm long, globe-shaped to elliptical, reddish-brown.

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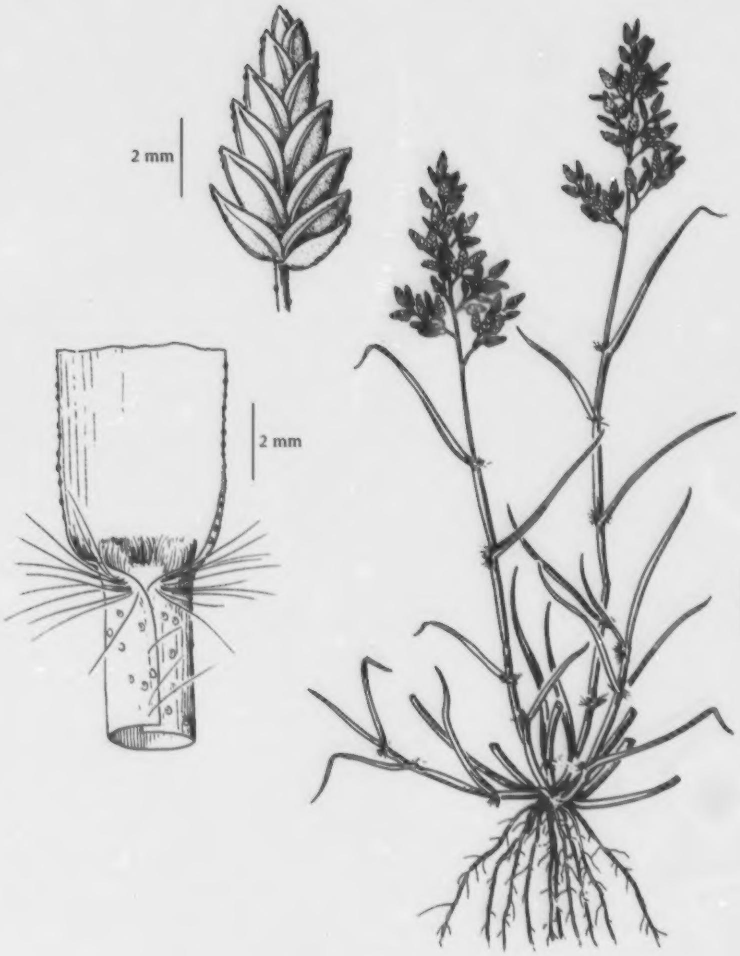
[13] Contributed by P.M. Peterson.



Eragrostis cilianensis

***Eragrostis mexicana* ssp. *virescens* (J. Presl) S. D. Koch & Sánchez Vega** (*E. virescens* J. Presl., *E. orcuttiana* Vasey)
Orcutt's lovegrass

HABITAT/RANGE:

Moist to dry roadsides, waste areas and ditches in the lowland, steppe and montane zones; infrequent in S BC; introduced from the SW U.S.

DESCRIPTION:

General: Annual, tufted herb from fibrous roots; stems erect to decumbent, sometimes bent, 10-130 cm tall.

Leaves: Sheaths smooth, sometimes with craterlike glands, pimply and hairy near the summit collars, the hairs up to 5 mm long; blades 5-25 cm long, (2) 3-7 (9) mm wide, flat, rough above, occasionally hairy near base, glabrous below; ligules 0.2-0.5 mm long, fringed.

Flowers: Inflorescence an egg-shaped panicle (5) 10-40 cm long, (2) 4-18 cm wide, open to somewhat congested when immature, rachis angled and channeled; branches 3-12 (15) cm long, spreading 0-80° from culm axis, solitary to whorled; secondary branches somewhat appressed; pedicels 1-6 (7) mm long, somewhat appressed, stiff; spikelets (4) 5-10 (11) mm long, 0.7-2.4 mm wide, 5- to 11- (15-) flowered, egg-shaped to linear, greyish-green to purplish; disarticulation of glumes first, then lemmas, paleas persistent; glumes 0.7-2 (2.3) mm long, subequal, egg-shaped to lanceolate, membranous; lemmas 1.2-2.4 mm long, egg-shaped, membranous, smooth or with a few hairs, greyish-green, tips sharp-pointed, lateral veins evident, often greenish; palea 1-2.2 mm long, papery, tips rounded to blunt; stamens 3; anthers 0.2-0.5 mm long, purplish; caryopses 0.5-0.8 (1) mm long, egg-shaped to rectangular-prismatic, one or both ends blunt, laterally compressed, shallow to deeply grooved on the upper surface (opposite the embryo), reddish-brown.

Notes: Recently, the species has been separated into two distinct subspecies.

***Eragrostis minor* Host** (*E. poaeoides* Beauv. *ex* Roem. & J.A. Schult.)
little lovegrass

HABITAT/RANGE:

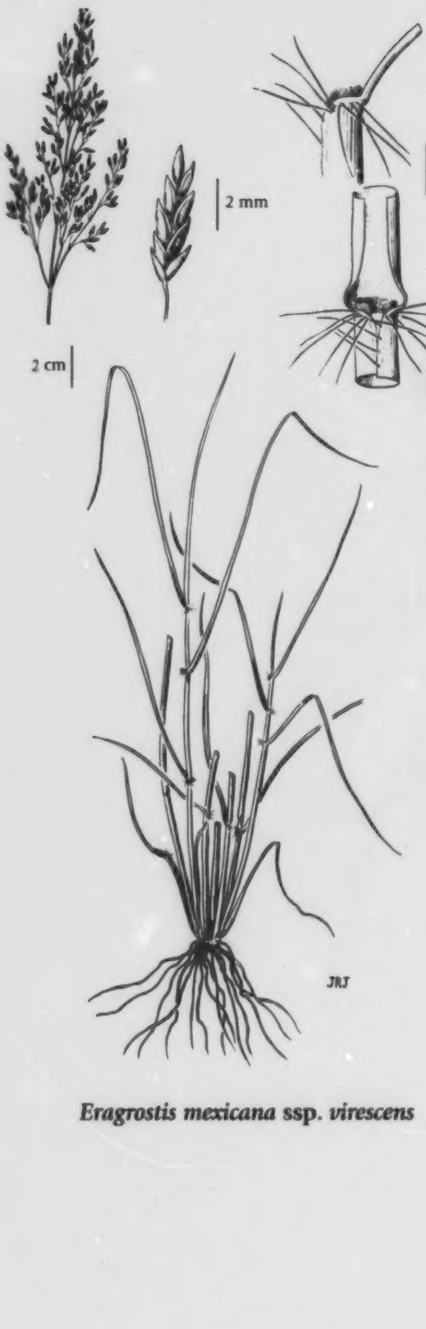
Moist to dry roadsides and waste places in the lowland and steppe zones; frequent in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems erect to decumbent, much branched, smooth, 10-45 cm tall.

Leaves: Sheaths sometimes glandular on midrib, fringed with fine hairs at summit, the hairs up to 4 mm long, the throats sparingly soft-hairy, loose, shorter than the internodes; blades 1.5-10 cm long, 1-3 (4) mm wide, flat, smooth with an occasional white hair, the margins sometimes with craterlike glands; ligules 0.2-0.5 mm long, fringed with fine hairs.

Flowers: Inflorescence an open to condensed, egg-shaped panicle, 4-20 cm long, 2.2-8 (10) cm wide, the branches 0.5-6 cm long, spreading 20-100° from the stem axis, sometimes with glandular areas of spots or craterlike glands on the rachis; spikelets 4-7 (11) mm long, (1.1) 1.5-2.2 mm wide, 7- to 12- (20-) flowered, flattened, narrowly egg-shaped, stalked, the stalks with craterlike glands, reddish-purple to greenish, occasionally greyish; glumes 0.9-1.6 mm long, subequal, broadly egg-shaped, membranous, pointed, keeled, the keels with craterlike glands, the lower glumes 0.9-1.4 mm long, the upper glumes 1.2-1.6 mm long; lemmas 1.3-2 (2.2) mm long, broadly egg-shaped, membranous, the tips sharp-pointed to rounded, with prominent lateral nerves, keeled, the keels occasionally with 1 or 2 craterlike glands; paleas 1.3-1.7 mm long, translucent, the tips rounded to sharp-pointed; stamens 2, anthers 0.2-0.3 mm long, reddish-brown; caryopses 0.5-1.1 mm long, pear-shaped, both ends rounded, smooth or faintly lined, brownish.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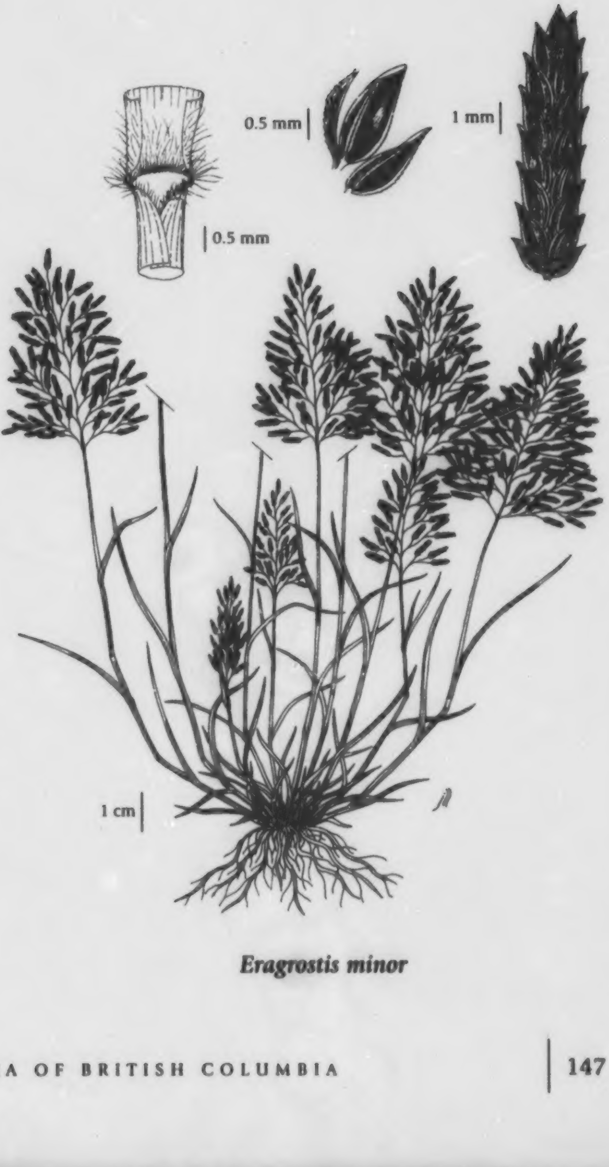
Eragrostis mexicana ssp. *virescens*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Eragrostis minor

Eragrostis pectinacea (Michx.) Nees

tufted lovegrass

HABITAT/RANGE:

Moist to dry sandy roadsides and waste places in the lowland and steppe zones; rare in SW (where probably introduced) and SC BC; disjunctly E to ON, PQ and NS and S to ME, MA, PA, SC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems several, erect to abruptly bent, spreading, 10-80 cm tall.

Leaves: Sheaths fringed with fine hairs at the summit, the hairs up to 4 mm long; blades 2-20 cm long, 1-4.5 mm wide, flat to in-rolled, more or less rough short-hairy above and smooth below; ligules 0.2-0.5 mm long, fringed with fine hairs.

Flowers: Inflorescence an open, sometimes congested, egg-shaped to pyramidal panicle, 5-25 cm long, 3-12 (15) cm wide, the branches 0.6-8.5 cm long, spreading 0-80° from the stem axis, solitary or paired on the lowest 2 nodes; spikelets appressed to the branches, 3.5-11 mm long, 1.2-2.5 mm wide, 6- to 22-flowered, linear to cylindrical, flattened, greyish, yellowish-brown, or dark reddish-purple; glumes 0.5-1.7 mm long, awl-like to egg-shaped or lanceolate, narrow, 1-nerved, translucent, the lower glumes 0.5-1.1 (1.5) mm long, the upper glumes 1-1.7 mm long, usually broader than the lower ones; lemmas 1-2.2 mm long, egg-shaped or lanceolate, translucent to membranous, more or less keeled, with conspicuous lateral nerves, greyish-green below, reddish-purple above, the tips sharp-pointed; paleas 1-2 mm long, persistent, translucent to membranous, the tips rounded; stamens 3, anthers 0.2-0.7 mm long, purplish.

Notes: *Eragrostis pectinacea* is often difficult to separate from *E. pilosa*. The lemmas of *E. pectinacea* have more conspicuous lateral nerves than those of *E. pilosa*.

Eragrostis pilosa (L.) Beauv. (*E. multicaulis* Steud.)

India lovegrass

HABITAT/RANGE:

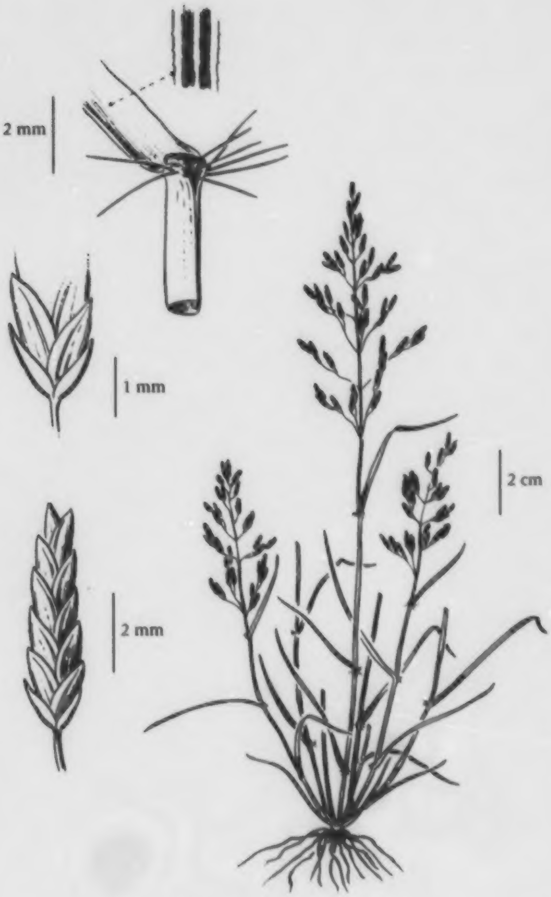
Wet to moist roadsides and waste places in the steppe zone; infrequent in SW BC; introduced from Europe.

DESCRIPTION:

General: Annual tufted grass from fibrous roots; stems erect or abruptly bent, 8-45 (70) cm tall.

Leaves: Sheaths smooth, occasionally glandular, fringed with fine hairs at summit, the hairs up to 3 mm long; blades 2-15 (20) cm long, 1-2.5 (4) mm wide, flat, more or less rough short-hairy above and smooth below; ligules 0.1-0.3 mm long, fringed with fine hairs.

Flowers: Inflorescence an open, diffuse, ellipsoid to egg-shaped panicle, 4-20 (28) cm long, 2-15 (18) cm wide, the branches 1-10 cm long, spreading 10-80° (110°) from the stem axis, hairlike, whorled on the lowest 2 nodes, sparsely soft-hairy in the branch axils; spikelets (2) 3.5-6 (10) mm long, 0.6-1.3 mm wide, flattened, (3-) 5- to 17-flowered, loosely arranged, linear to oblong or narrowly egg-shaped, greyish; glumes 0.3-1.2 mm long, narrowly egg-shaped to lanceolate, translucent, the lower glumes 0.3-0.6 (0.8) mm long, 1-nerved, the upper glumes 0.7-1.2 mm long, 3-nerved; lemmas 1.2-1.8 mm long, egg-shaped or lanceolate, membranous to translucent, strongly nerved but the lateral nerves inconspicuous, greyish-green below, reddish-purple above, the tips sharp-pointed; paleas 1-1.6 mm long, easily deciduous, membranous to translucent, the tips rounded; stamens 3, anthers 0.2-0.3 mm long, purplish; caryopses 0.5-0.9 mm long, egg- to prism-shaped, both ends rounded, smooth to faintly lined, light brown.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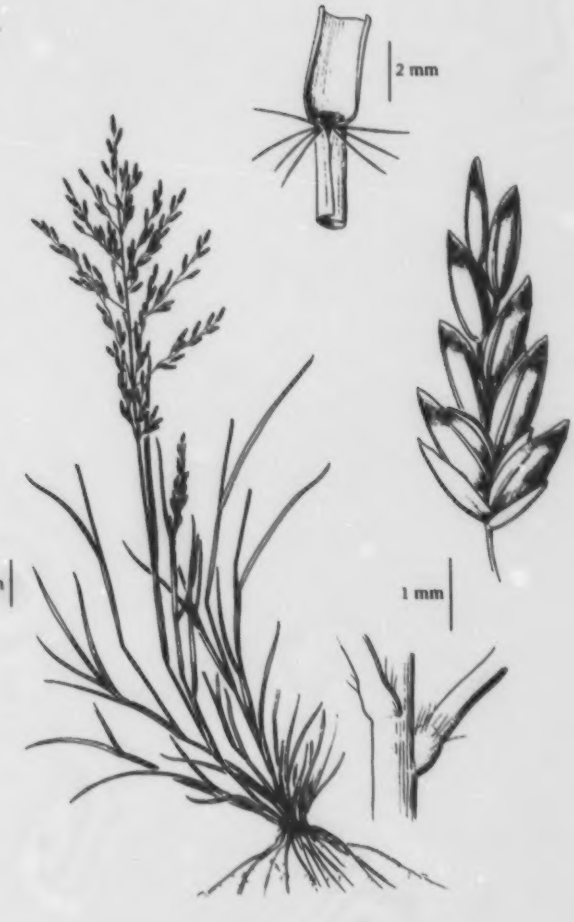
Eragrostis pectinacea



Eragrostis pilosa

EREMOPYRUM

1. Glumes 1-nerved, conspicuously channeled along each side of the keel; lower lemmas shortly hairy below and smooth above, the others smooth .... *E. triticeum*

1. Glumes 3- to 5-nerved, not conspicuously channeled along each side of the keel; lemmas shortly stiff-hairy .... *E. orientale*

Eremopyrum orientale **(L.) Jaubert & Spach**

Oriental false wheatgrass

HABITAT/RANGE:

Moist to mesic alkaline meadows in the steppe and montane zones; rare in SE BC, known only from Bummers Flats; introduced from Eurasia.

DESCRIPTION:

General: Annual herb from fibrous roots; stems bent at the base, short-hairy, 10-25 cm tall.

Leaves: Sheaths open; blades flat, 2-3 mm wide, stiff-hairy above and below; ear-shaped lobes present at the leaf-bases; ligules about 0.5 mm long, fringed.

Flowers: Inflorescence a strongly flattened, egg-shaped to elliptical spike, 1.5-2.5 cm long; spikelets 7-15, closely crowded, broadly spreading, 10-15 mm long; glumes lanceolate, 10-15 mm long (including awns), the awns 2-5 mm long; lemmas 10-16 mm long, short stiff-hairy, lower ones short-hairy below and smooth above, other lemmas smooth, awned, the awns 4-5 mm long; palea keels prolonged into 2 toothlike appendages.

Eremopyrum triticeum **(Gaertn.) Nevski** (*Agropyron triticeum* Gaertn.)

annual wheatgrass

HABITAT/RANGE:

Moist to mesic alkaline meadows in the steppe and montane zones; rare in SC and SE BC, known only from Bummers Flats and Osoyoos; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems abruptly bent at the base, 10-30 cm tall.

Leaves: Sheaths open; blades flat, 1-3 mm wide; ear-shaped lobes at the leaf-bases slender, nearly 1 mm long; ligules jagged with coarse hairs, about 1 mm long.

Flowers: Inflorescence a strongly flattened, egg-shaped to cylindrical spike, 1-1.7 cm long; spikelets 11 to 19, closely crowded, broadly spreading, 6-10 mm long; glumes broadly lanceolate, 4-6 mm long, long-pointed to short-awned; lemmas 5-6 mm long, long-pointed to short-awned, lowest ones short-hairy below and smooth above, other lemmas smooth; paleas rounded or slightly toothed at the tips.

FESTUCA[14]

1. Rhizomes usually present; leaf sheaths reddish, often shredding into fibres and often with hairs angled backwards .... *F. rubra*

1. Rhizomes usually absent; leaf sheaths usually neither shredding into fibres nor with hairs angled backwards.

   2. Lemma awns usually more than 2.5 mm long.

      3. Leaf blades flat or loosely rolled, (2) 3-10 mm wide.

         4. Lemma calluses elongated with tufts of stiff hairs at the base; ligules fringed with hairs usually 0.5-1 times the length of the ligules .... *F. subuliflora*

         4. Lemma calluses not elongated, without hairs at the base; ligules fringed with hairs much shorter than 0.5 times the length of ligules .... *F. subulata*

      3. Leaf blades folded to appear less than 2 mm wide.

         5. Rachillas straighter, usually not visible between the florets; anthers 1.4-3 mm long; ovary tops hairy .... *F. occidentalis*

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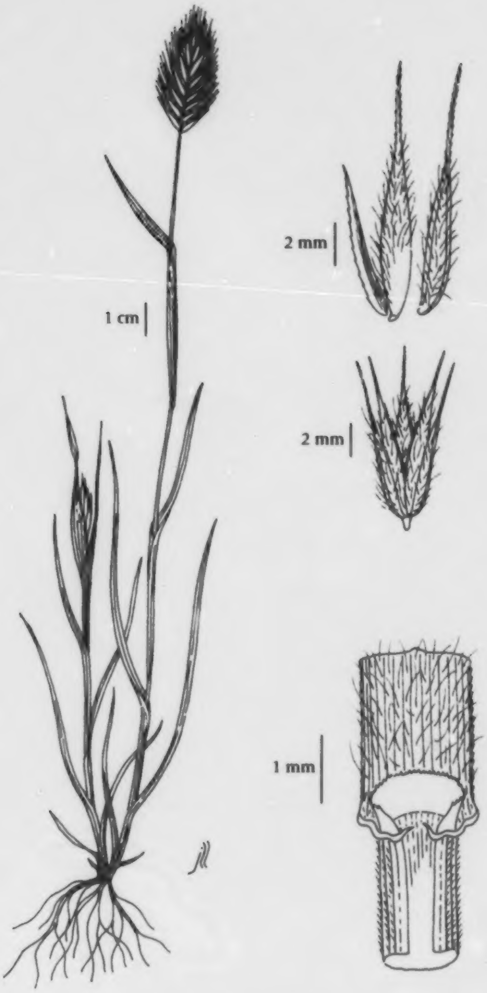
[14] Contributed by S.G. Aiken.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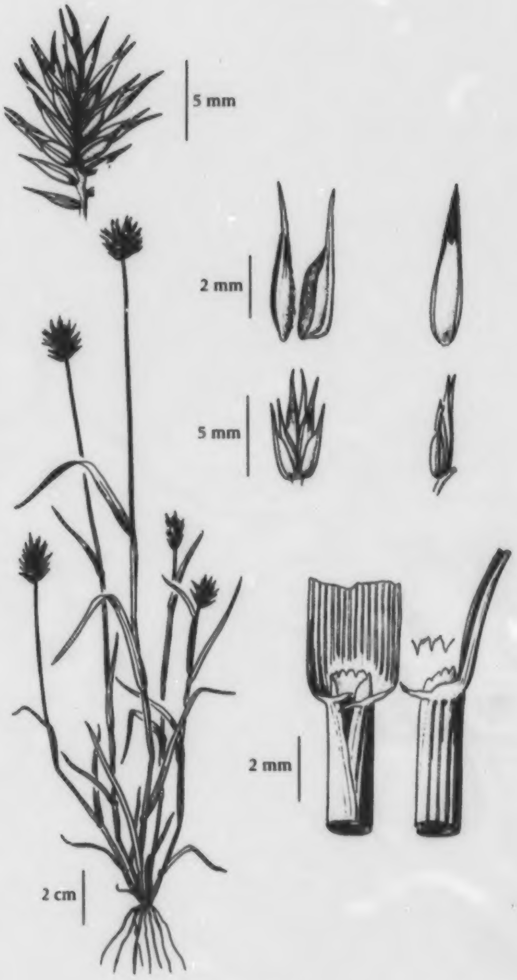
Eremopyrum orientale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Eremopyrum triticeum

5. Rachillas usually somewhat zig-zag and visible between the florets; anthers 2.8-4.5 mm long; ovary tops smooth .... *F. idahoensis*

2. Lemma awns usually less than 2.5 mm long.

6. Stem nodes not visible; bunchgrasses more than 25 cm tall.

7. Lower panicle branches weak, to 10 cm long, often reflexed and with the flowers and branches borne on one side of the axis; spikelets usually strongly purplish; lemma margins translucent, giving a sheen to the spikelets .... *F. altaica*

7. Lower panicle branches often rigid, 2-7 cm long, erect or ascending, not as above; spikelets usually pale green below and subdued purplish above; lemma margins not conspicuously translucent .... *F. campestris*

6. Stem nodes visible and/or plants less than 25 cm tall.

8. Spikelets, or most of them, vegetatively proliferating .... *F. viviparoidea*

8. Spikelets not vegetatively proliferating.

9. Anthers 2 mm long or more.

10. Anthers 3-4 mm long; ovary tops hairy; infrequent native in subalpine and alpine meadows of SC and SE BC .... *F. viridula*

10. Anthers 2-3 mm long; ovary tops smooth; rare introduction in SE BC .... *F. trachyphylla*

9. Anthers less than 2 mm long.

11. Lemmas finely pointed, rarely awned .... *F. filiformis*

11. Lemmas awned.

12. Leaf blades more or less inverted pear-shaped or roundish in cross-section, with strongly developed sclerenchyma (hardened) strands .... *F. saximontana*

12. Leaf blades angular and more or less irregular-hexagonal in cross-section, with weakly developed sclerenchyma (hardened) strands.

13. Stems densely hairy near and within the panicles .... *F. baffinensis*

13. Stems mostly smooth.

14. Lower lemmas 3.0-4.2 mm long; leaf blades with folded widths of 0.35-0.65 mm; ovary tops smooth .... *F. brachyphylla*

14. Lower lemmas 2.8-3.3 mm long; leaf blades with folded widths of 0.2-0.4 mm; ovary tops with a few stiff hairs .... *F. minutiflora*

***Festuca altaica* Trin.** (*F. scabrella* Torr. *ex* Hook. var. *scabrella*, *F. altaica* var. *scabrella* [Torr. *ex* Hook.] Breitung)
Altai fescue; northern rough fescue

HABITAT/RANGE:

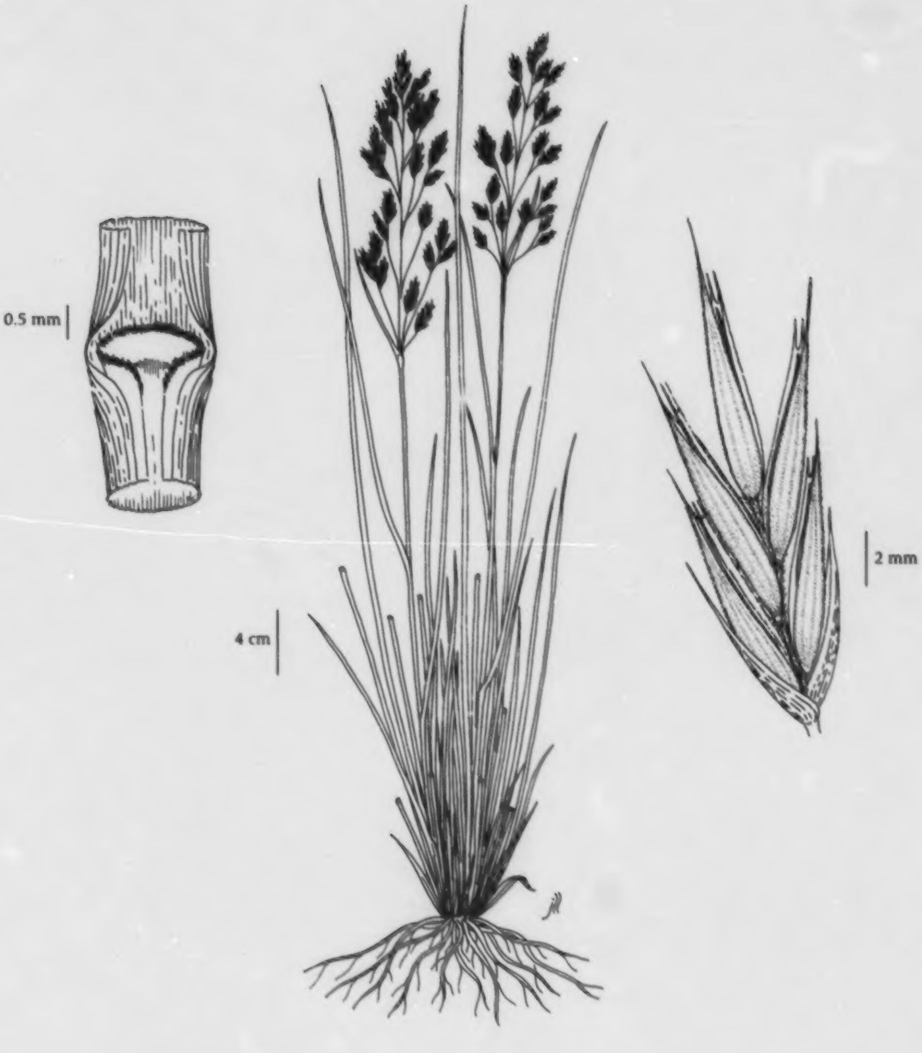
Mesic to dry meadows, grasslands, shrublands, rocky slopes and forest openings from the montane (N BC) to alpine zones; common in BC in and east of the Coast Mountains, S to 51° N; amphiberingian, N to AK, YT and NT, E to AB, disjunct to PQ and NF and S to N MI; E Asia.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems (25) 30-90 (120) cm tall, the nodes not visible.

Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year, remaining entire, not conspicuously splitting between the nerves; blades (4) 10-30 (45) cm long, 1-3 mm wide, flat or folded; ligules 0.2-0.6 mm long.

Flowers: Inflorescence an open panicle, 5-16 cm long, the branches (3) 5-13 cm long often with the flowers and branches borne on one side of the axis, the lower branches weak, to 10 cm long, often reflexed and to one side; spikelets strongly purplish-bronze with a sheen, 8-14 mm long, 3- to 4- (6-) flowered; lower glumes (4) 4.2-6.8 (8.3) mm long, the upper ones (4.5) 5.3-7.5 (10) mm long; lemmas (6.5) 7.5-9 (12) mm long, the margins translucent, awned, the awns 0.2-0.7 mm long; anthers 2.6-4.5 (5) mm long; ovary tops hairy.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Festuca altaica

Festuca baffinensis **Polun.**

Baffin fescue

HABITAT/RANGE:

Mesic to dry rocky areas in the alpine zone; frequent in NE and E BC (Rocky Mountains), rare in the Coast Mountains of N and WC BC; circumpolar, N to AK, YT and NT, E to W AB, disjunct to ON and S to CO, UT and ID; Greenland, Eurasia.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems densely hairy near and within the panicle, 6-25 (30) cm tall, the nodes visible in larger plants.

Leaves: Sheaths not conspicuous at the base of the stems, remaining entire, not shredding into fibres; blades (1.5) 3-9 (17) cm long, 0.25-0.8 mm wide, folded, more or less angular and irregular-hexagonal in cross-section with weakly developed sclerenchyma strands; ligules 0.1-0.3 mm long.

Flowers: Inflorescence a compact, usually dense, egg-shaped panicle, 1.5-3 (4) cm long, the branches 0.3-1.5 cm long (on plants 20-30 cm tall, the panicles are often elongated and narrow); spikelets 2- to 5- (6-) flowered, 4.5-8.5 mm long, often borne on 1 side; lower glumes 2.2-3.7 mm long, the upper ones 3-5 mm long; lemmas 3.5-5.6 mm long, awned, the awns 0.8-2.5 (3.3) mm long; anthers 0.3- 0.7 (1.1) mm long; ovary tops hairy.

Festuca brachyphylla **J. A. Schult. *ex* J. A. & J. H. Schult.** (*F. ovina* L. var. *brachyphylla* J. A. & J. H. Schult., *F. ovina* var. *brevifolia* S. Wats. *pro parte*)

alpine fescue

HABITAT/RANGE:

Mesic to dry rocky slopes, scree slopes and moraines in the alpine zone; frequent throughout BC in and E of the Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to NF and S to MN, CO, AZ and CA; Greenland, Eurasia.

DESCRIPTION:

General: Perennial, more or less densely tufted grass from fibrous roots; stems mostly smooth, 5-30 cm tall.

Leaves: Sheaths not conspicuous at the base of the stems, splitting between the nerves or remaining entire, usually not shredding into fibres; blades (2) 10-20 cm long, 0.35-0.65 mm wide, folded, angular and more or less irregular-hexagonal in cross-section with weakly developed sclerenchyma strands; ligules 0.1-0.3 mm long.

Flowers: Inflorescence a narrow, spikelike panicle, 1.5-4 (5.5) cm long, the branches 0.2-1.2 cm long; spikelets 2- to 4- (6-) flowered, 4-8.5 mm long; lower glumes 1.2-3.3 mm long, the upper ones (2.4) 2.9-4.6 mm long; lemmas 3-5.2 mm long, awned, the awns 0.8-3.5 mm, usually less than 2.5 mm long, the lowermost lemmas 3-4.2 mm long; anthers (0.5) 0.7-1.1 (1.3) mm long; ovary tops smooth.

Festuca campestris **Rydb.** (*F. altaica* Trin. var. *major* [Vasey] Gleason, *F. scabrella* [Torr.] *ex* Hook. var. *major* Vasey)

rough fescue

HABITAT/RANGE:

Mesic to dry grasslands, meadows and forest openings in the steppe to subalpine zones; common in SC and SE BC; E to SW AB and S to CO, ID and OR.

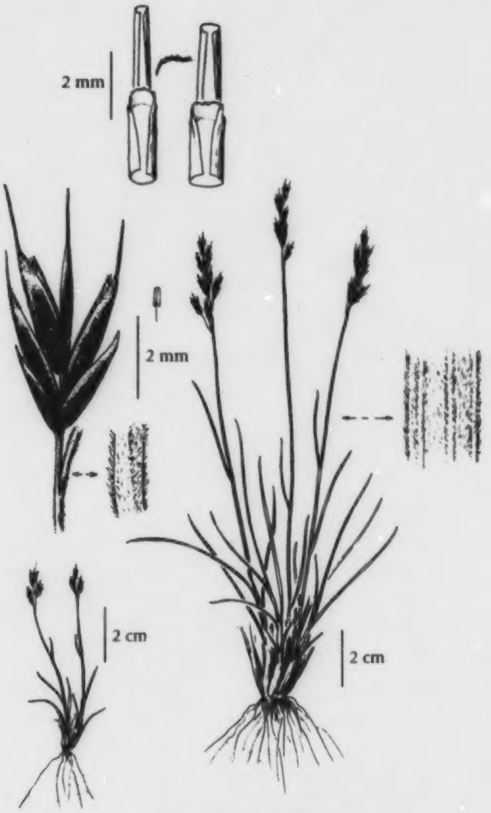
DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems (30) 40-90 cm tall, without visible nodes.

Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year, remaining entire, not shredding into fibres; blades 10-60 cm long, flat or folded; ligules 0.1-0.5 mm long.

Flowers: Inflorescence an open panicle, 5-18 cm long, the branches 2.5-7 (13) cm long, the lower ones rigid, 2-7 cm long, erect or ascending, not borne on one side of the axis; spikelets usually pale green below and somewhat purplish above, (3-) 4- to 5- (7-) flowered, 8-12 (16) mm long; lower glumes 4.5-7.5 (8.5) mm long, the upper ones 5.3-8.2 (9) mm long; lemmas (6.2) 7-8.5 (10) mm long, the margins not conspicuously translucent, long-pointed, awned, the awns 0.5-1.5 mm long; anthers (3.3) 4.5-6 mm long; ovary tops hairy.

Notes: The branches of the inflorescence tend to be stiffer in *F. campestris* than in *F. altaica*.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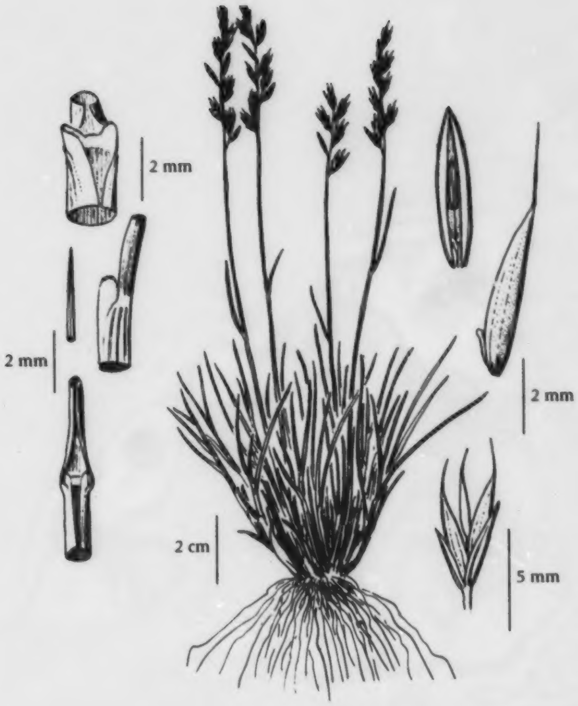
Festuca baffinensis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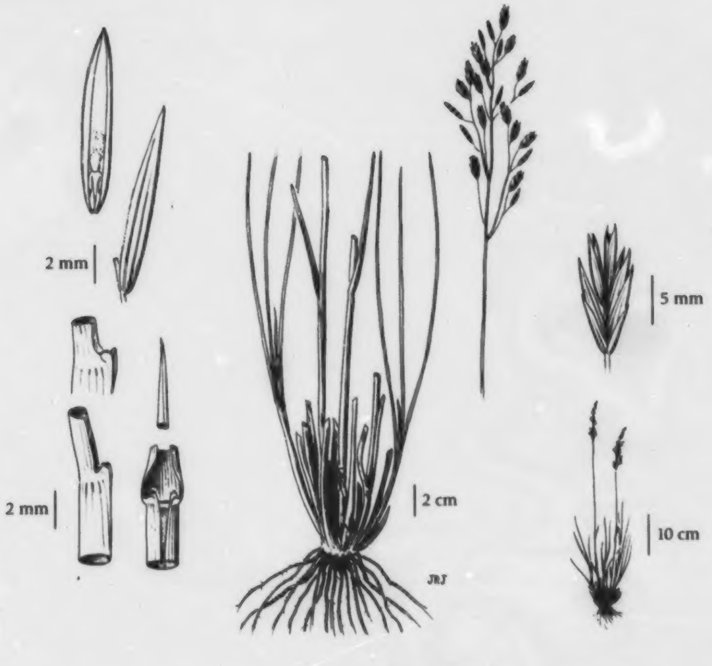
Festuca brachyphylla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Festuca campestris

***Festuca filiformis* Pourr.** (*F. capillata* Lam., *F. tenuifolia* Sibth., *F. ovina* L. var. *capillata* [Lam.] Alefield)

hair fescue

HABITAT/RANGE:

Dry roadsides, disturbed sites and lawns in the lowland and montane zones; rare in WC and SW BC, known only from Terrace and Vancouver; introduced from Europe.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 18-25 (55) cm tall, with visible nodes.

Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year, remaining entire, not shredding into fibres; blades (5) 11-23 (30) cm long, 0.2-0.6 mm wide, folded, finely wirelike; ligules 0.15-0.3 mm long.

Flowers: Inflorescence a narrow panicle, 1-4 (8) cm long, the branches 0.5-1.5 (2) cm long; spikelets 2 to 6, 3-6 (6.5) mm long; lower glumes 1-2.5 mm long, the upper ones 1.7-2.3 (3.9) mm long; lemmas 2.3-4 (4.4) mm long, finely pointed, rarely awned, if present then the awns up to 0.4 mm long; anthers 1.5-1.9 (2.2) mm long; ovary tops smooth.

***Festuca idahoensis* Elmer** (*F. ovina* L. var. *ingrata* Hackel = ssp. *idahoensis*; *F. idahoensis* var. *roemeri* Pavl., *F. roemeri* [Pavl.] Alexeev = ssp. *roemeri*)

Idaho fescue (ssp. *idahoensis*); **Roemer's fescue** (ssp. *roemeri*)

HABITAT/RANGE:

Mesic to dry grasslands in the steppe to subalpine zones (ssp. *idahoensis*) and grassy rock outcrops and Garry oak woodlands in the lowland zone (ssp. *roemeri*); ssp. *idahoensis* – frequent in BC south of 51° N in and east of the Coast-Cascade Mountains; ssp. *roemeri* – frequent in SW BC west of the Coast-Cascade Mountains (S Vancouver Island and the Gulf Islands); ssp. *idahoensis* – E to SK and S to SD, NM, AZ and CA; ssp. *roemeri* – S to CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 30-100 cm tall, with visible nodes.

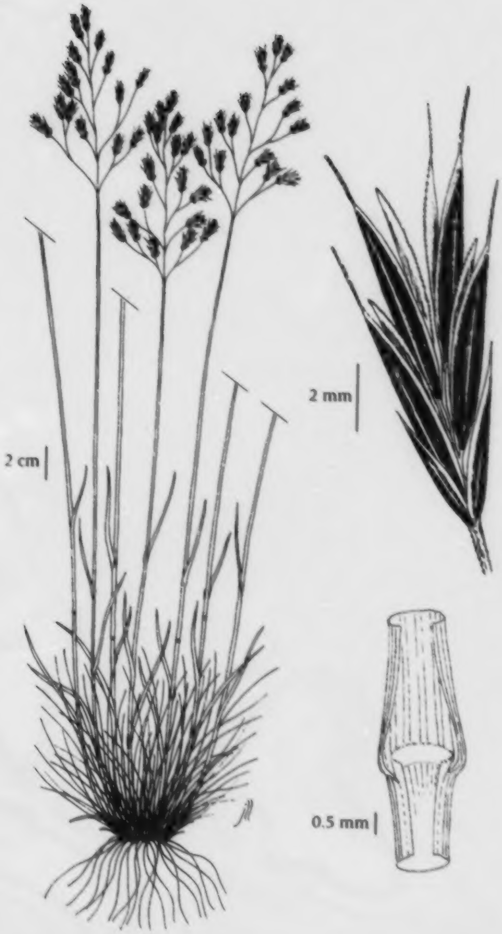
Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year, remaining entire, not shredding into fibres; blades (5) 8-25 (35) cm long (adjacent plants may have conspicuously longer or shorter leaves), 1-3.5 mm wide (flat) or 0.4-0.8 mm wide (folded), hexagonal near the midleaves, with 3- to 5-nerved; ligules 0.1-0.6 mm long.

Flowers: Inflorescence an open panicle, (5) 7-20 (25) cm long, the branches (1.5) 3-7 cm long; spikelets (2-) 3- to 7- (9-) flowered, (5.8) 7.5-17 (19) mm long; lower glumes 2-5 (6) mm long, the upper ones (3) 4-8 mm long; lemmas (5) 6-8 (10) mm long, awned, the awns 2-6 (7) mm long; rachillas zig-zag, visible between the florets; anthers (2.5) 3.2-4 (4.5) mm long; ovary tops smooth.

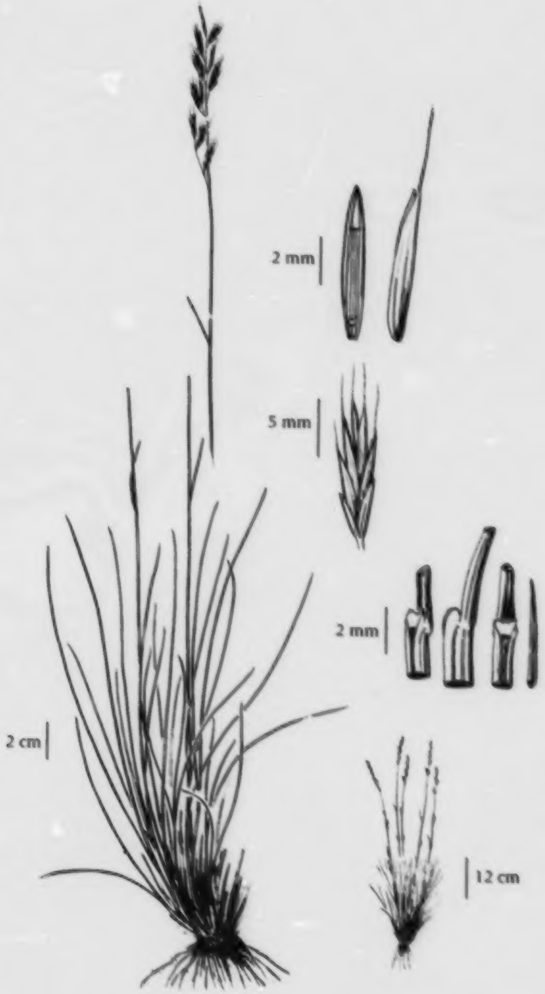
Notes: Two variable subspecies occur in BC:

1. Plants fine in aspect; leaves folded, hexagonal in cross-section (near the midleaves), 0.5-0.7 mm wide, with 3-5 nerves; panicles 9.5-20 (25) cm long .... ssp. *idahoensis*

1. Plants coarse in aspect; leaves egg-shaped in cross-section (near the midleaves), 0.75-1.2 mm wide, with 4-7 nerves; panicles 7-11 cm long .... ssp. *roemeri* (Pavl.) S. Aiken


2 cm
2 mm
0.5 mm

Festuca filiformis


2 mm
5 mm
2 mm
2 cm
12 cm

Festuca idahoensis ssp. *idahoensis*

***Festuca minutiflora* Rydb.**

little fescue

HABITAT/RANGE:

Dry stony slopes in the alpine zone; rare in SE BC and the Coast Mountains; N to YT and S to NM, AZ and CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots, the tufts small; stems 4-30 (40) cm tall, with visible nodes in taller plants.

Leaves: Sheaths not conspicuous at the base of the stems, remaining entire, not shredding into fibres; blades 1-7 (10) cm long, 0.2-0.45 mm wide, folded; ligules 0.1-0.3 mm long.

Flowers: Inflorescence a tiny, narrow panicle, 1-4 (5) cm long, the branches 0.15-1.5 cm long; spikelets 2- to 5-flowered, 2.5-5 mm long; lower glumes 1.3-2.5 mm long, the upper ones 2-3.4 mm long; lemmas 2-3.4 mm long, awned, the awns 0.5-1.5 (1.7) mm long; anthers (0.4) 0.7-1.1 mm long; ovary tops sparsely hairy.

Notes: First recognized from BC in the 1980's. It is known from at least 6 sites and is possibly more common. In the past it has been mistaken for *F. brachyphylla*.

***Festuca occidentalis* Hook.**

western fescue

HABITAT/RANGE:

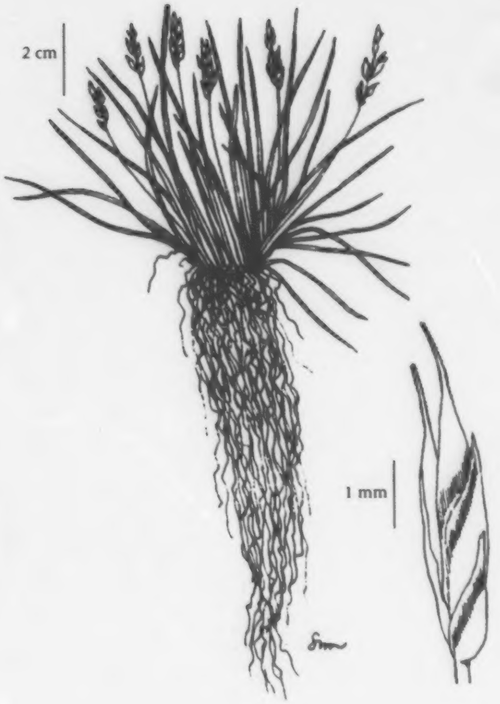
Mesic to dry meadows, rocky slopes, clearings and open forests in the lowland and montane zones; frequent in BC south of 56° N, infrequent northward to 57° N; E to SW AB, disjunct to ON and S to MI, WI, WY, UT and CA.

DESCRIPTION:

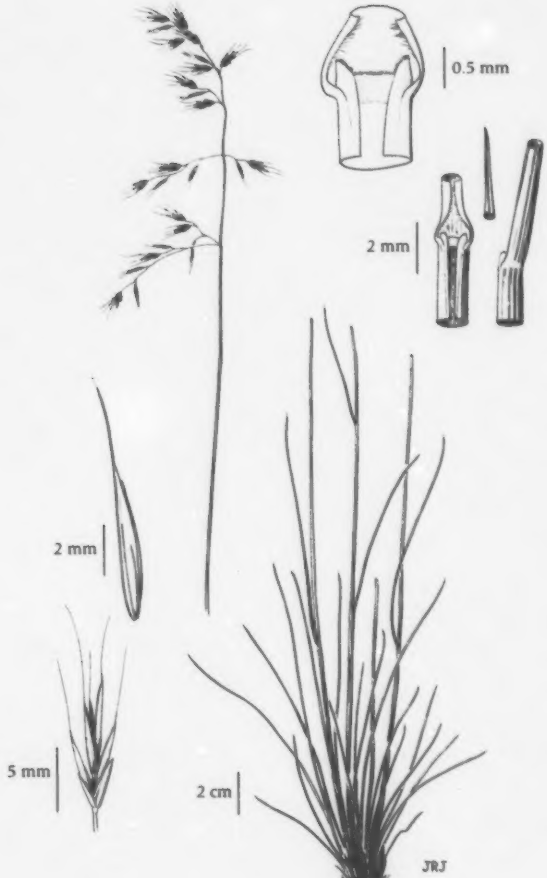
General: Perennial, densely tufted grass from fibrous roots; stems (25) 45-110 cm tall, with visible nodes.

Leaves: Sheaths not conspicuous at the base of the stems, remaining entire, not shredding into fibres; blades (5) 10-20 (40) cm long, 0.4-0.7 mm wide, tightly folded, hairlike; ligules 0.1-0.4 (0.5) mm long.

Flowers: Inflorescence a loose, often drooping, panicle, 5-20 cm long, the branches (1) 2-10 cm long; spikelets 2- to 5- (7-) flowered, 6-12 mm long; lower glumes 2-5 mm long, the upper ones 3-6 mm long; lemmas 4-7 (8) mm long; awned, the awns 3-12 mm long; anthers (1) 1.7-3 mm long; ovary tops hairy.



Festuca minutiflora


0.5 mm
2 mm
2 mm
5 mm
2 cm
JRJ

Festuca occidentalis

Festuca rubra* L. ssp. *rubra sens. lat. (*F. ammobia* Pavl., *F. prolifera auct. non* Piper, *F. rubra* var. *richardsonii* [Hook.], *F. richardsonii* Hook., *F. rubra* ssp. *arenicola* Alexeev, *F. rubra* ssp. *aucta* [Frecz. & Bobr.] Hult., *F. rubra* ssp. *aucta f. pseudovivipara* Pavl., *F. rubra* var. *littoralis* Vasey *ex* Beal, *F. rubra* ssp. *pruinosa* [Hack.] Piper, *F. rubra* ssp. *secunda* [J. Presl.] Pavl., *F. rubra* ssp. *secunda* var. *mediana* Pavl., *F. rubra* ssp. *vallicola* [Rydb.] Pavl., *F. rubra* ssp. *mediana* [Pavl.] Pavl.)

red fescue

HABITAT/RANGE:

Wet to mesic beaches, tidal marshes, streambanks, meadows, gravelly sites and dry disturbed areas, roadsides and fields in the lowland to alpine zones; common in coastal and S BC, infrequent in N BC; circumpolar, N to AK, YT, NT, E to NF, and S to TN, NC, TX, NM and CA; Greenland, Iceland, Eurasia.

DESCRIPTION:

General: Perennial, loosely tufted grass usually from rhizomes; stems 15-90 (120) cm tall, with visible nodes.

Leaves: Sheaths usually reddish, often shredding into fibres and often with hairs angled backwards, not persistent at the base of the stems; blades 6-30 cm long, 0.5-4 mm wide, folded or loosely folded; ligules 0.1-0.5 mm long.

Flowers: Inflorescence an open or loosely compact panicle, (2) 5-14 (20) cm long, the branches 1.5-8 cm long; spikelets (2-) 4- to 6- (10-) flowered, rarely with leafy bulbils in place of flowers, (6) 9-12 (13) mm long; lower glumes (2) 2.5-3.5 (4.5) mm long, the upper ones 3.5-5.5 (6) mm long; lemmas (4) 5-7 (8) mm long, awned, the awns (0.3) 1-3.3 (5) mm long; anthers (2.2) 3-4 (4.5) mm long; ovary tops smooth.

Notes: This polymorphic species complex is treated here as a single species for convenience, following Aiken and Darbyshire (1990) and Aiken (1993, 1994). Some distinctive native and introduced forms have been recognized as separate species or treated at infraspecific rank; however, numerous transitional forms occur between most of them (Pavlick 1985). Over 100 cultivated varieties of this complex are sold in Europe; some have been introduced into North America where hybridization with native forms further obscures the taxonomic picture. For an alternative treatment see Pavlick (1985), who recognized eight subspecies and two varieties for the complex in BC.

***Festuca saximontana* Rydb.** (*F. brachyphylla* var. *rydbergii* [St. Yves] Cronq., *F. ovina* L. var. *rydbergii* St.-Yves and var. *saximontana* [Rydb.] Gleason, *F. saximontana* var. *purpusiana* [St.-Yves] Freder. & Pavl., *F. saximontana* var. *robertsiana* Pavl.)

Rocky Mountain fescue

HABITAT/RANGE:

Mesic to dry meadows, grasslands, rocky slopes and ridges and forest openings in the montane to subalpine zones; common in S BC in and E of the Coast-Cascade Mountains, infrequent in SW and N BC; N to AK, YT, NT, E to NF and S to NY, MI, WI, IA, KS, NM, AZ and CA.

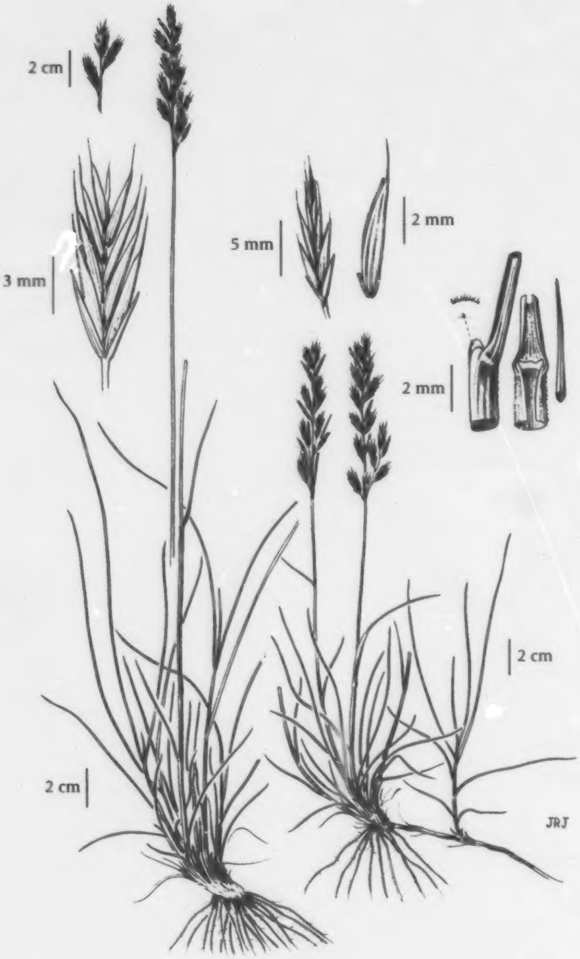
DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems (5) 20-50 (60) cm tall, with visible nodes in taller plants.

Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year, remaining entire, not shredding into fibres; blades 2-20 cm long, 0.3-0.7 mm wide, stiff, hairlike, folded; ligules 0.1-0.4 mm long.

Flowers: Inflorescence a narrow panicle, 3-9 (13) cm long, the branches 0.5-3 (5) cm long; spikelets (2-) 3- to 4- (6-) flowered, (3.5) 4.5-9 (10) mm long; lower glumes 1.5-3.5 mm long, the upper ones 2.5-4.8 mm long; lemmas 3-5.6 mm long, awned, the awns 0.5-2 (2.5) mm long; anthers (0.9) 1.2-1.7 (2.1) mm long; ovary tops smooth.

Notes: *F. saximontana* var. *purpusiana* is the name given to plants 8-20 (25) cm tall, in which the stems are less than 2 times the length of the basal tufts. Such plants are found at higher altitudes in more exposed habitats, but do not appear to be genetically distinct. The var. *robertsiana*, described by Pavlick (1984) from the Rocky Mountains of BC, is intermediate in culm length between the var. *purpusiana* and var. *saximontana* and is difficult to distinguish (Aiken 1994).


2 cm
3 mm
5 mm
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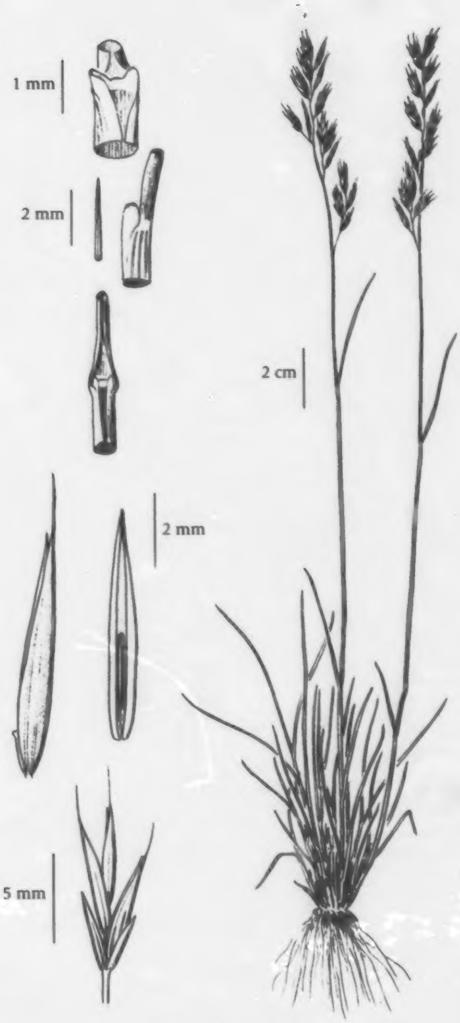
2 mm
2 cm
2 cm
JRJ

Festuca rubra ssp. *rubra*


1 mm
2 mm
2 cm
2 mm
5 mm

Festuca saximontana

Festuca subulata **Trin.**

bearded fescue

HABITAT/RANGE:

Moist to mesic streambanks, meadows, forests and forest openings in the lowland and montane zones; frequent in SW BC and the Queen Charlotte Islands, infrequent east of the Coast-Cascade Mountains N to 57° N; N to SW AK, E to W AB and S to UT, NV and CA.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots; stems 35-120 cm tall, with visible nodes.

Leaves: Sheaths not conspicuous at the base of the stems, shredding into fibres towards the end of the growing season; blades 10-30 cm long, 3-10 mm wide, flat, lax; ligules 0.2-0.7 (1) mm long, fringed.

Flowers: Inflorescence an open panicle, (10) 15-30 (40) cm long, the branches 6-10 (15) cm long; spikelets 3- to 4- (6-) flowered, 6-11 (12) mm long; lower glumes (1.8) 2-3.2 (4) mm long, the upper ones (2) 3.5-5.5 (6) mm long; lemmas (5) 6-7.5 (8.8) mm long, awned, the awns (2.5) 5-10 (17) mm long, sometimes curving but not crinkled; anthers 1.5-2.8 mm long; ovary tops hairy.

Festuca subuliflora **Scribn.**

crinkle-awned fescue

HABITAT/RANGE:

Mesic forests in the lowland zone; locally frequent in SW BC; S to CA.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots; stems (40) 60-100 (125) cm tall, with visible nodes.

Leaves: Sheaths not conspicuous at the base of the stems, shredding into fibres towards the end of the growing season; blades (10) 15-30 (40) cm long, 2-10 mm wide, flat, lax; ligules 0.2-0.6 mm long, fringed hairs with hairs usually 0.5-1 times the length of the ligules.

Flowers: Inflorescence an open panicle, (7) 10-20 cm long, the branches 3-15 cm long; spikelets (2-) 3- to 4- (5-) flowered, 8-12.5 mm long; lower glumes 2-4 mm long, the upper ones 3.5-5 (6) mm long; lemmas 6-9 mm long, awned, the awns 10-15 mm long, crinkled, zig-zagged, often recurved; anthers 2.5-4 mm long; ovary tops hairy.

Festuca trachyphylla **(Hack.) Kraj.** (*F. brevipila* Tracey, *F. duriuscula auct. non* L., *F. ovina* L. var. *duriuscula auct. non* L.)

hard fescue

HABITAT/RANGE:

Mesic to dry disturbed areas; rare in S BC; introduced from Europe.

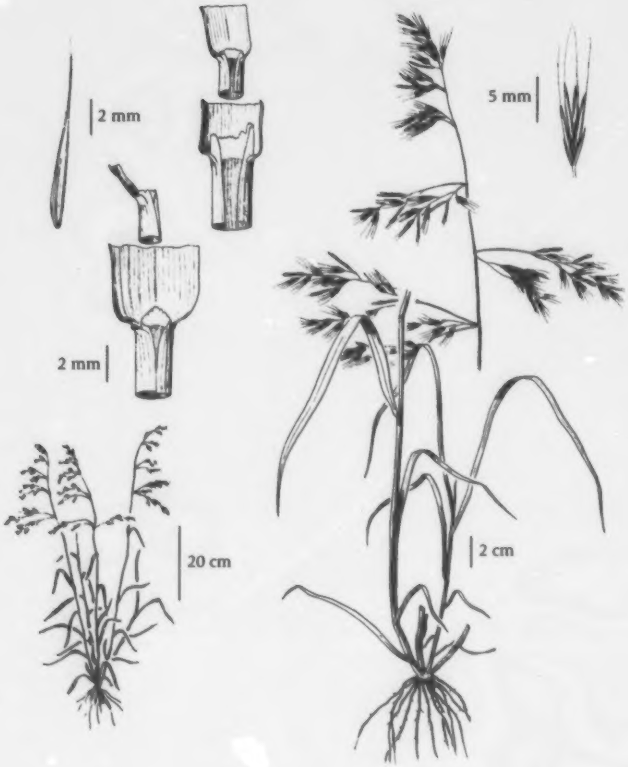
DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems (20) 30-50 (75) cm tall, with visible nodes.

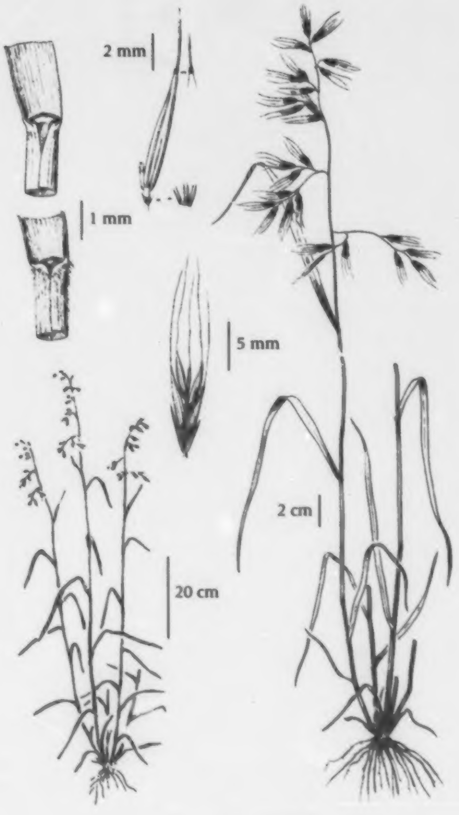
Leaves: Sheaths conspicuous at the base of the stems, persisting for more than 1 year but not always conspicuous, remaining entire, not shredding into fibres; blades 8-30 cm long, 0.4-0.6 mm wide, hard to the touch, folded; ligules 0.1-0.3 mm long.

Flowers: Inflorescence a narrow panicle, 3-10 (13) cm long, the branches 1.2-3.5 cm long; spikelets 4- to 7- (8-) flowered, 5.5-9 (10) mm long; lower glumes 2-4 mm long, the upper ones 3-5.5 mm long; lemmas (3.8) 4-5 (5.5) mm long, awned, the awns 0.5-2.5 mm long, about 1/2 as long as the lemmas; anthers 2-3 (3.4) mm long; ovary tops smooth.

Notes: Several cultivars of this species are grown in Holland and distributed widely.


2 mm
2 mm
5 mm
20 cm
2 cm

Festuca subulata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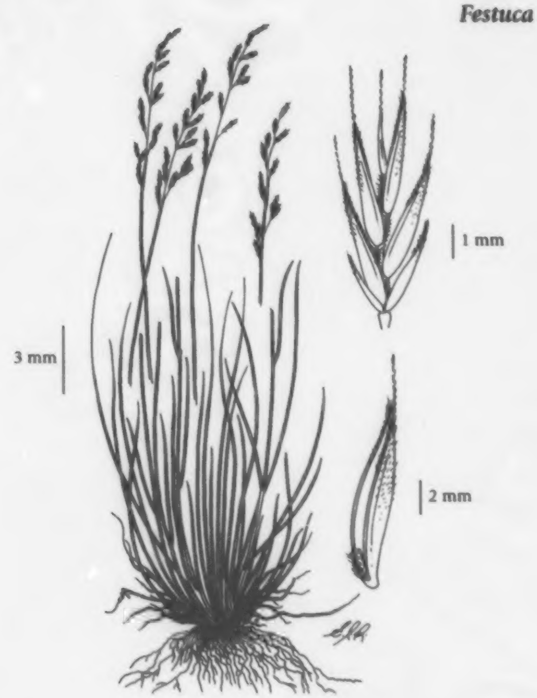
2 cm
20 cm

Festuca subuliflora



Festuca trachyphylla

Festuca viridula **Vasey**

green fescue

HABITAT/RANGE:

Mesic to dry meadow slopes in the upper subalpine and alpine zones; infrequent in and E of the Coast-Cascade Mountains in S BC south of 50° N; E to AB and S to MT and CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots, forming small clumps; stems (35) 50-100 cm tall, with visible nodes.

Leaves: Sheaths not conspicuous at the base of the stems as they tend to turn brown early, remaining entire, not shredding into fibres; blades 10-25 cm long, 0.8-2.5 mm wide, flat or loosely folded; ligules 0.2-0.5 mm long.

Flowers: Inflorescence an open panicle, 4-12 (15) cm long, the branches 1.5-3 cm long; spikelets (2-) 3- to 6- (7-) flowered, 9-12 (15) mm long; lower glumes (2.4) 3.5-5 mm long, the upper ones 4.5-6 (7.5) mm long; lemmas (5.5) 6.5-8 mm long, sharp-pointed or awned or awnless, if awned then the awns 0.5-1.4 mm long; anthers (2) 3-4 (5) mm long; ovary tops hairy.

Festuca viviparoidea **Krajina *ex* Pavl. *sens lat.*** (*F. vivipara* [L.] Sm. ssp. *glabra* Freder., *F. viviparoidea* ssp. *krajinae* Pavl.)

viviparous fescue

HABITAT/RANGE:

Mesic to dry rocky slopes and outcrops in the alpine zone; rare in extreme SE BC and NW BC, infrequent elsewhere in N BC; N to AK, YT and NT and E to SW AB.

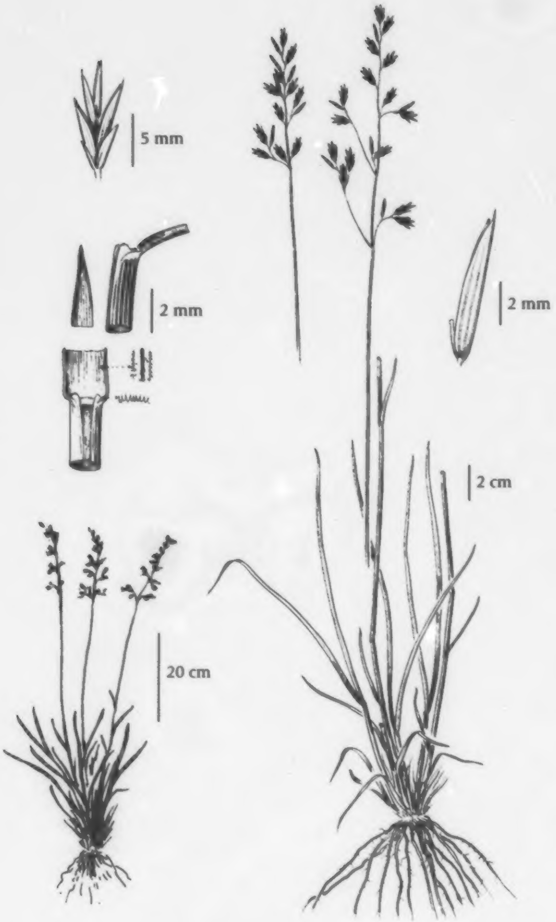
DESCRIPTION:

General: Perennial, sometimes densely tufted grass from fibrous roots; stems 11-40 cm tall with visible nodes in larger plants.

Leaves: Sheaths may or may not be conspicuous at the base of the plant, persisting for more than 1 year, shredding into fibres; blades 3-9 (16) cm long, 0.35-0.6 mm wide, folded; ligules (0.1) 0.2-0.5 mm long.

Flowers: Inflorescence a narrow, often spikelike panicle, 2-8 cm long, the branches 0.2-1 cm long; spikelets 1- to 4-flowered, 7-25 mm long, usually vegetatively proliferating; lower glumes 3-4.2 mm long, the upper ones 3.6-6 mm long; lemmas 3.6-6.9 mm long, awned or awnless, if awned then the awns 0.1-0.8 mm long; anthers (if present) 2 mm long; ovary tops smooth.

Notes: It is not known whether the pseudovivipary of this taxon is environmentally induced or genetically controlled; it may also be a hybrid between *F. baffinensis* and *F. brachyphylla* or even *F. rubra*.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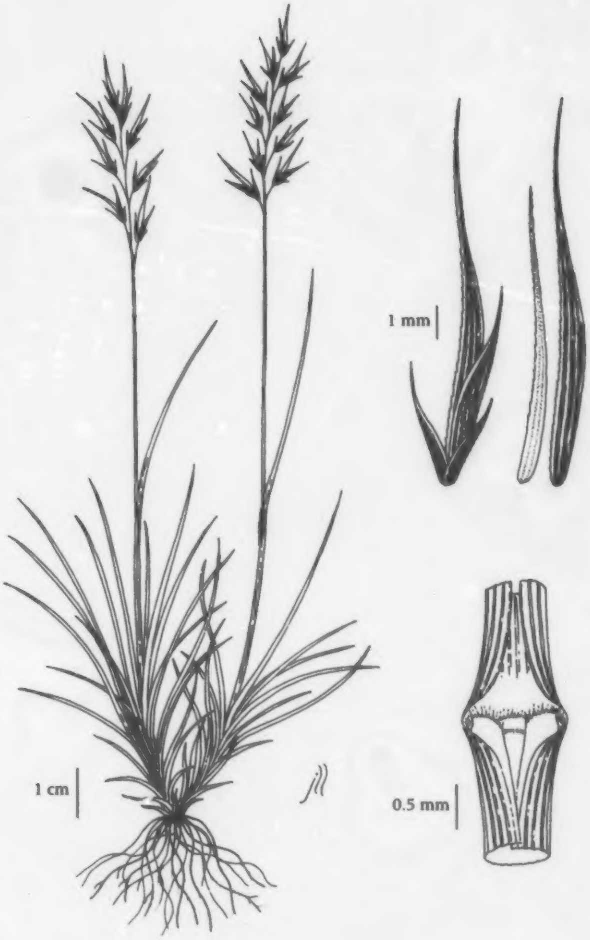
2 cm
20 cm

Festuca viridula


1 mm
1 cm
jll
0.5 mm

Festuca viviparoidea

GLYCERIA

1. Spikelets 10-22 mm long, linear.
   2. Lower lemmas 3.5-6 mm long.
      3. Plants 70-150 cm tall; leaf blades 4-8 (12) mm wide .... *G. occidentalis*
      3. Plants 10-70 cm tall; leaf blades 2-6 mm wide .... *G. declinata*
   2. Lower lemmas 3-4 mm long.
      4. Blades more or less pimpled on the upper surfaces; sheaths smooth; lemmas smooth between sparsely rough nerves .... *G. borealis*
      4. Blades minutely rough on both surfaces; sheaths finely rough; lemmas minutely rough between distinctly rough nerves .... *G. leptostachya*
1. Spikelets 2.5-6.5 mm long, egg-shaped to cylindrical.
   5. Nerves of the lemmas not prominently raised; spikelets 2.5-5 mm wide; paleas often exposed .... *G. canadensis*
   5. Nerves of the lemmas prominently raised; spikelets at most about 2.5 mm wide; paleas concealed by lemmas.
      6. Lower glumes 0.6-1.5 mm long; palea tips with narrow slits.
         7. Ligules usually closed in front, those of the lower leaves mostly 1-3 mm long; lemmas up to 2 mm long .... *G. striata*
         7. Ligules usually open in front, those of the lower leaves 3-6 mm long; lemmas 2-2.5 mm long .... *G. elata*
      6. Lower glumes 1.5-3 mm long; palea tips with wide, V-shaped notches.
         8. Lemmas 2.5-4 mm long; anthers 1-2 mm long .... *G. maxima*
         8. Lemmas 1.6-2.7 mm long; anthers 0.5-0.8 mm long.
            9. Lemmas 2.1-2.7 mm long; lower glumes 1.5-1.7 (2) mm long .... *G. grandis*
            9. Lemmas 1.6-2.2 mm long; lower glumes 0.8-1.5 mm long .... *G. pulchella*

Glyceria borealis **(Nash) Batch.**

northern mannagrass

HABITAT/RANGE:

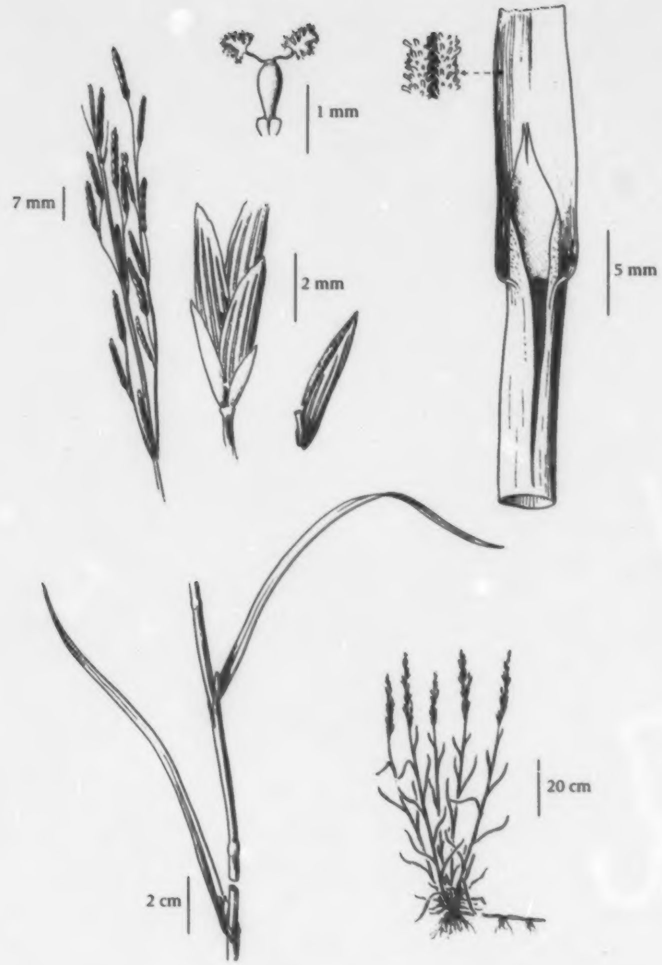
Swamps, lakeshores and wet meadows (often in water up to 1 m deep) in the lowland and montane zones; frequent in SW BC, infrequent in SC BC; N to AK and YT, E to NF and S to ME, MA, PA, IN, IA, SD, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes, freely rooting; stems erect to more or less decumbent, hollow, 80-150 cm tall/long.

Leaves: Sheaths somewhat flattened, smooth, open for 1-4 cm; blades (2) 3-5 (6) mm wide, flat or folded, more or less pimpled on the upper surfaces; ligules pointed, entire but usually splitting, minutely hairy, (4) 5-10 mm long.

Flowers: Inflorescence a narrow panicle, 18-50 cm long, the branches ascending-appressed; spikelets mostly 6- to 11-flowered, linear, tapered at the tips, 10-12 (15) mm long; lower glumes (1.5) 2-2.5 mm long, the upper ones slightly over 3 mm long; lemmas prominently 7-nerved to the narrow, translucent upper margins, 3-4 mm long, smooth, minutely rough on the nerves; stamens 3; anthers 0.5-1 mm long.


1 mm
7 mm
2 mm
5 mm
20 cm
2 cm

Glyceria borealis

Glyceria canadensis **(Michx.) Trin.**

rattlesnake-grass

HABITAT/RANGE:

Wet ditches, marshes and shallow water in the lowland zone; infrequent in the lower Fraser Valley; introduced from E North America.

DESCRIPTION:

General: Perennial herb from rhizomes; stems erect, simple, hollow, solitary or a few in a tuft, smooth or slightly rough, about 60-100 cm tall.

Leaves: Sheaths shorter than the internodes, those at the base overlapping; blades 3-8 mm wide, rough; ligules cut off at the ends, 5-6 mm long.

Flowers: Inflorescence a diffuse panicle, about 18 cm long, the branches spreading-ascending or often drooping, 6-13 cm long, the branches bearing spikelets mostly toward the tips; spikelets mostly 5- to 12-flowered, flattened, broadly egg-shaped, turgid, 3-8 mm long; glumes unequal, pointed, 1-nerved, translucent-margined, the lower ones lanceolate, 1.6-2.4 mm long, the upper ones broadly egg-shaped, 2.1-3 mm long; lemmas obscurely 7-nerved, broadly egg-shaped, 2.9-4 mm long, blunt or somewhat pointed to sharp-pointed at the tips, the margins thin or translucent; paleas often exposed, rounded to egg-shaped; stamens 2; anthers 0.6-1 mm long.

Glyceria declinata **Brébiss.**

waxy mannagrass

HABITAT/RANGE:

Wet ditches, marshes, meadows and shallow water in the lowland zone; rare in SW BC (lower Fraser Valley and Mayne Island) and SC BC (Nicola Lake); introduced from Europe.

DESCRIPTION:

General: Perennial grass from fibrous roots; stems curved, ascending, hollow, 10-70 cm tall.

Leaves: Sheaths open, keeled, more or less short stiff-hairy, the margins thin and transparent; blades 2-6 mm wide, 3-12 cm long, abruptly contracted at the tops, greyish- to bluish-green; ligules 5-7 mm long.

Flowers: Inflorescence a narrow, more or less spikelike panicle, 5-25 cm long, contracted in fruit, with all branches borne on 1 side of the axis, the branches 1 to 3 at the central panicle nodes, smooth, the longer branches with 1 to 6 spikelets, the shorter branches with 1 (2) spikelet; spikelets 5- to 7-flowered, narrowly oblong, lax, greyish-green or purplish, 15-20 mm long; lower glumes 1.5-2.5 mm long, egg-shaped, nearly to quite sharp-pointed, the upper ones 2.5-4 mm long, elliptical, nearly blunt; lemmas prominently 7-nerved, cylindrical to egg-shaped, 3.5-4.5 mm long, rough, narrowly translucent, with 3 to 5 distinct, blunt or sharp-pointed teeth at the tips; paleas lanceolate, deeply cleft at the tips into 2, somewhat divergent, awl-tipped teeth, distinctly exceeding the lemmas; stamens 3; anthers 0.6-1.1 mm long.

Glyceria elata **(Nash) M.E. Jones**

tall mannagrass

HABITAT/RANGE:

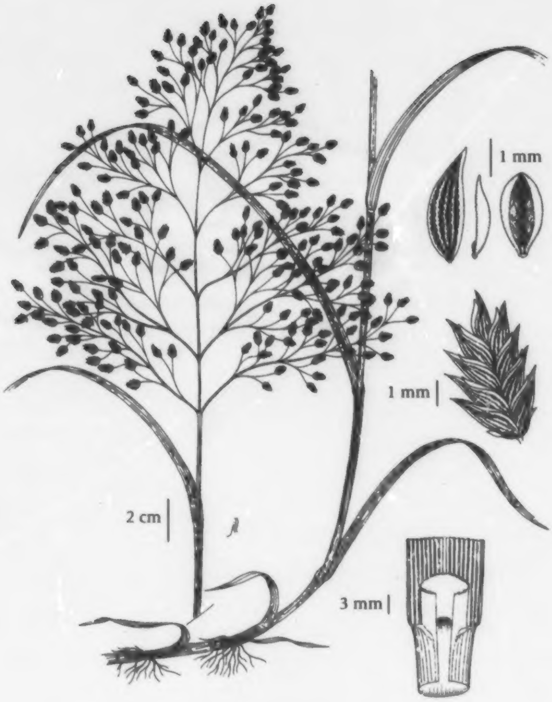
Swamps, lakeshores, streamsides, bogs and moist to wet meadows and forests in the lowland and montane zones; common in SW BC, infrequent E of the Coast-Cascade Mountains N to 55° N; E to SW AB and S to NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems erect to more or less decumbent, hollow, 100-150 cm tall/long.

Leaves: Sheaths somewhat flattened, rough, the hairs directed backwards, closed to near the tops; blades 6-10 (12) mm wide, flat; ligules more or less cut-off at the ends, the margins usually irregularly jagged, strongly hairy, minutely rough, the lower leaf ligules 3-6 mm long.

Flowers: Inflorescence a loose, open panicle, 15-25 cm long, the branches spreading; spikelets mostly 4- to 7-flowered, egg-shaped, about 5 mm long and 2 mm wide; glumes more or less fringed with fine hairs, the margins irregularly jagged, the lower ones (0.7) 1 (1.2) mm long, the upper ones about (1.1) 1.5 (1.8) mm long; lemmas prominently 7-nerved, slightly irregularly jagged, 2-2.5 mm long; palea tips with narrow slits, concealed by the lemmas; stamens 2; anthers 0.7-0.8 mm long.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1 mm
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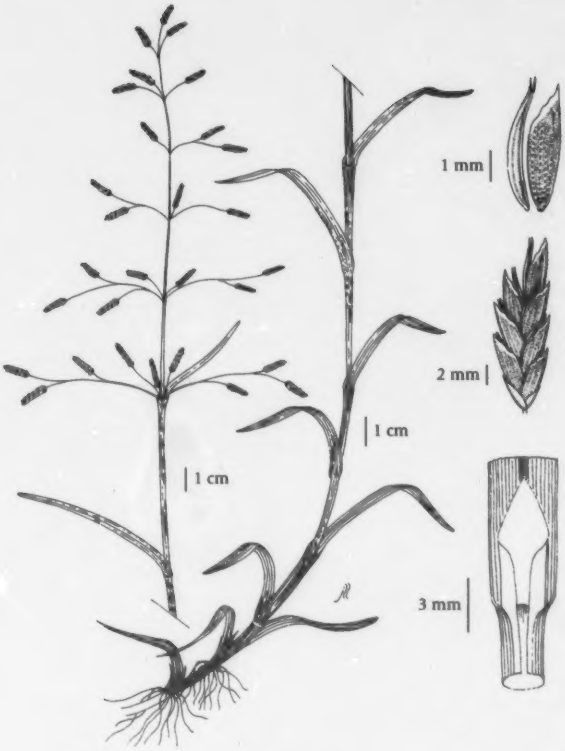
Glyceria canadensis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1 cm
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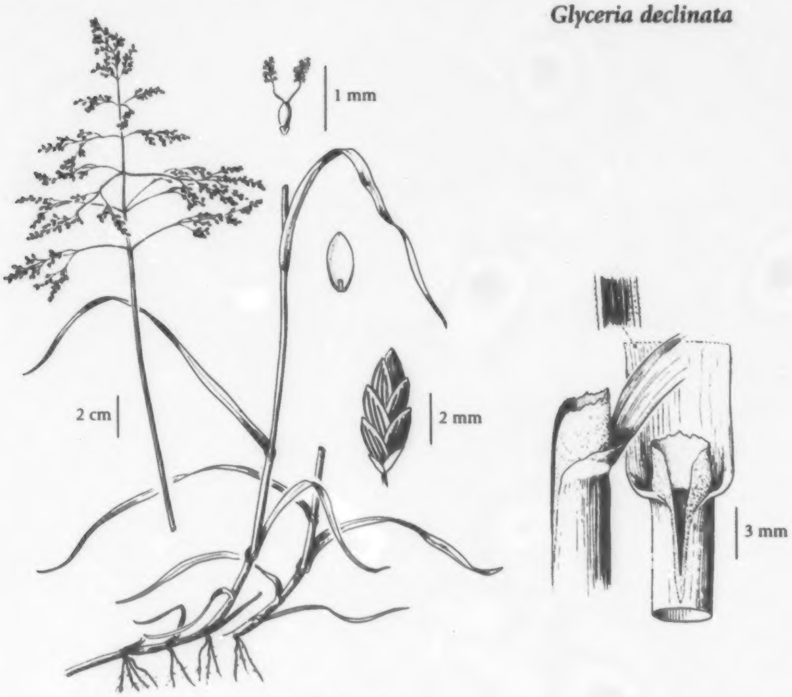
3 mm

Glyceria declinata


1 mm
2 cm
2 mm
3 mm

Glyceria elata

***Glyceria grandis* S. Wats. *ex* A. Gray**

reed mannagrass; American mannagrass

HABITAT/RANGE:

Swamps, lakeshores, streamsides and wet meadows in the lowland, steppe and montane zones; frequent in S BC, infrequent northward; N to AK, YT and NT, E to NF and S to ME, MA, VI, OH, IL, IA, NE, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems erect to more or less decumbent, hollow, 90-160 (200) cm tall/long.

Leaves: Sheaths smooth, closed completely or open for as much as 1 cm; blades 6-15 mm wide, flat, firm, the upper surfaces minutely rough, smooth on the lower surfaces; ligules blunt, nearly entire, 4-9 mm long.

Flowers: Inflorescence an open, loose panicle, 20-35 cm long, the branches numerous, spreading; spikelets loosely (4-) 5- to 6- (7-) flowered, flattened slightly, egg-shaped, about 4.5 mm long and 1.8 mm wide; glumes lanceolate, the lower ones 1.5-1.7 (2) mm long, the upper ones about (2.3) 2.4-2.6 (3) mm long, usually more or less minutely fringed with fine hairs, the margins sometimes slightly irregularly jagged; lemmas prominently 7-nerved, purplish, about 2.1-2.7 mm long, somewhat irregularly jagged at the blunt tips; paleas abruptly notched, the notches wide, V-shaped, or the margins sometimes slightly irregularly jagged, concealed by the lemmas; stamens 3, sometimes 2; anthers mostly 0.5-0.8 mm long.

***Glyceria leptostachya* Buckl.**

slender-spiked mannagrass

HABITAT/RANGE:

Brackish tidal marshes, swamps, lakeshores, streamsides and wet meadows in the lowland zone; rare in coastal BC; N to SE AK and S to CA.

DESCRIPTION:

General: Perennial grass from rhizomes; stems erect to decumbent, hollow, up to 60-100 (150) cm tall/long.

Leaves: Sheaths somewhat flattened, finely rough, closed for most of their length but open for 1 cm or more; blades 3-7 mm wide, flat or somewhat in-rolled when dry, minutely rough on both surfaces; ligules pointed, the margins irregularly jagged, more or less finely hairy to rough, 6-11 mm long.

Flowers: Inflorescence a loose panicle, up to 40 cm long, the few branches ascending to appressed; spikelets loosely 8- to 13- (15-) flowered, narrow, linear, nearly circular in cross-section, tapered to the tips, 12-18 mm long; glumes membranous, the lower ones 1.2-1.5 mm long, the upper ones nearly twice as long; lemmas prominently 7-nerved to the narrow, translucent upper margins, minutely rough between distinctly rough nerves, slightly over 3 mm long, the lowest ones 3-4 mm long; stamens 3; anthers slightly over 0.5 mm long.

***Glyceria maxima* (Hartm.) Holmb.**

giant mannagrass

HABITAT/RANGE:

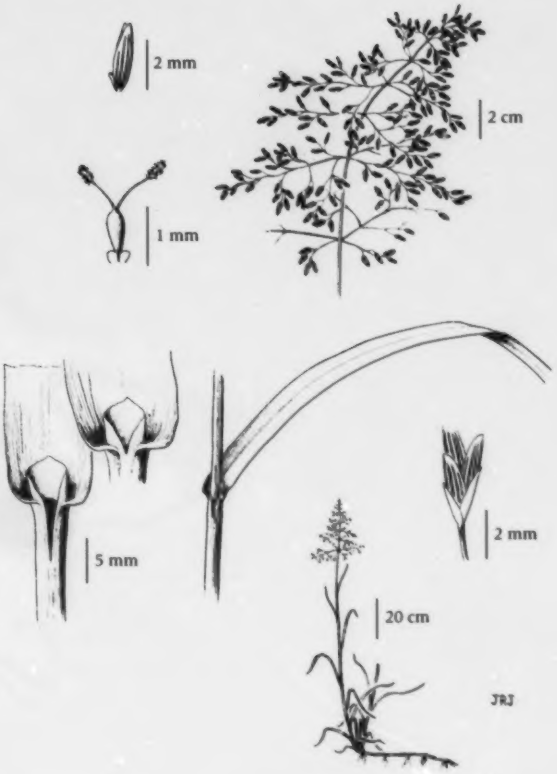
Brackish tidal marshes, lakeshores and wet meadows in the lowland zone; rare in SW and WC (lower Skeena River) BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial grass from rhizomes with numerous long shoots; stems erect, hollow, (60) 80-200 (250) cm tall.

Leaves: Sheaths rough; blades 8-18 mm wide, 30-60 cm long, bright green, smooth below, rough above, with 2 pale brown, triangular spots at the base below, the upper leaves indistinctly cross-wrinkled; ligules 2.5-3.5 mm long, blunt at the tips, slightly jagged with a central spine-shaped tip, the tips 1-2 mm long.

Flowers: Inflorescence a dense panicle, 10-40 cm long, with 4 to 10 branches at the central panicle nodes, the branches relatively thick, nearly erect to spreading, rough, with the main axis rough; spikelets 7- to 9-flowered, egg-shaped, green or tinged with yellow or violet, 2.5-6.5 mm long and up to about 2.5 mm wide; glumes nearly sharp-pointed, the lower ones 2-3 mm long, the upper ones 3-4 mm long; lemmas prominently 7-nerved, blunt, 2.5-4 mm long; paleas blunt, with wide V-shaped notches, 3-4 mm long, concealed by the lemmas; stamens 3; anthers 1-2 mm long.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2 cm
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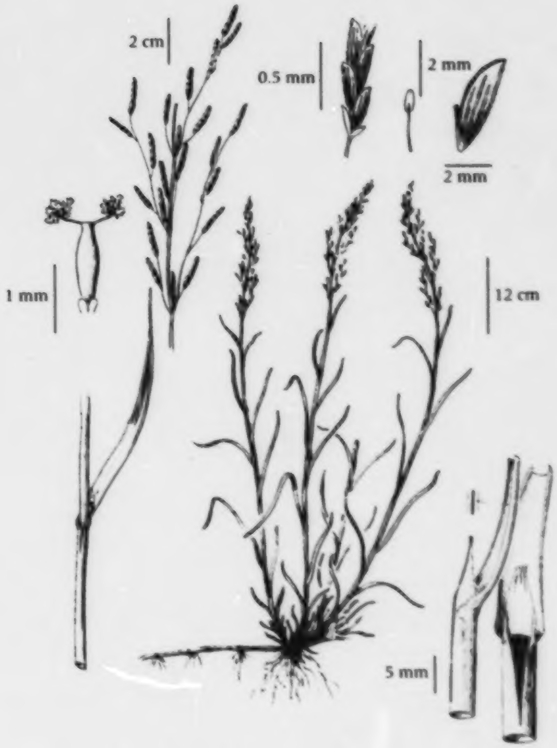
5 mm
2 mm
20 cm
JRJ

Glyceria grandis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0.5 mm
2 mm
2 mm
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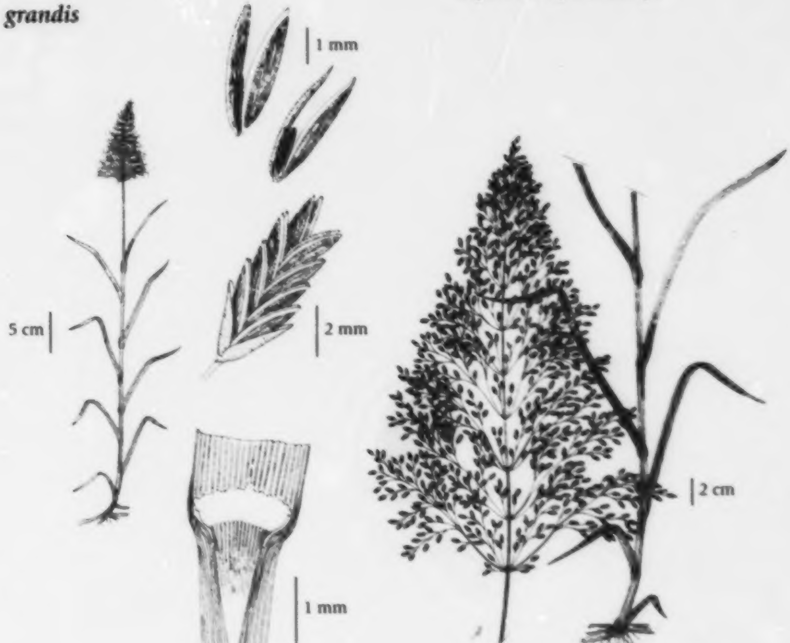
12 cm
5 mm

Glyceria leptostachya


1 mm
5 cm
2 mm
2 cm
1 mm

Glyceria maxima

***Glyceria occidentalis* (Piper) J.C. Nels.** (*G. septentrionalis auct. non* A.S. Hitchc.)

western mannagrass

HABITAT/RANGE:

Marshes, lakeshores and wet meadows and forests in the lowland zone; rare in coastal SW BC; S to ID and CA.

DESCRIPTION:

General: Perennial grass from rhizomes; stems erect to more or less decumbent, hollow, up to 70-150 cm tall.

Leaves: Sheaths somewhat flattened, apparently smooth, but minutely rough, closed at the base but open above; blades 4-8 (12) mm wide, flat or folded, minutely rough to more or less pimpled or just minutely rough on the upper surfaces, minutely rough on the lower surfaces; ligules pointed, entire to irregularly jagged, smooth or sparsely hairy, 7-12 mm long.

Flowers: Inflorescence a narrow panicle 20-50 cm long, the branches mostly ascending or sometimes spreading; spikelets mostly 6- to 13-flowered, linear, 15-22 mm long; glumes broad, the margins lightly jagged and more or less fringed with fine hairs at the tips, the lower ones about 1.5 mm long, the upper ones at least twice as long; lemmas 5-6 mm long, prominently 7-nerved, finely rough on the nerves and over the back, slightly jagged and more or less fringed with fine hairs at the blunt tips; paleas shorter than the lemmas; stamens 3; anthers 1.1-1.6 mm long.

***Glyceria pulchella* (Nash) K. Schum.**

slender mannagrass

HABITAT/RANGE:

Streamsides, marshes, lakeshores and ponds in the montane zone; rare in BC east of the Coast-Cascade Mountains; N to AK, YT and NT and E to MB.

DESCRIPTION:

General: Perennial grass from rhizomes, often rooting at the lower nodes; stems erect, 40-100 cm tall.

Leaves: Sheaths rough, the hairs angled backwards, open at least near the tops; blades 2-5 mm wide, flat, minutely rough on both surfaces; ligules (1.5) 2-4 mm long.

Flowers: Inflorescence a loose panicle 15-25 cm long or more, the branches ascending to spreading-ascending; spikelets mostly 3- to 6-flowered, egg-shaped to cylindrical, compressed, 3.5-6 mm long; lower glumes 1.5-2 mm long, the upper ones 2-2.3 mm long; lemmas 1.6-2.2 mm long, prominently 7-nerved, the nerves finely rough; stamens 3; anthers about 0.6 mm long.

***Glyceria striata* (Lam.) A.S. Hitchc.** (*G. striata* var. *striata* [Scribn.] Fern.)

fowl mannagrass

HABITAT/RANGE:

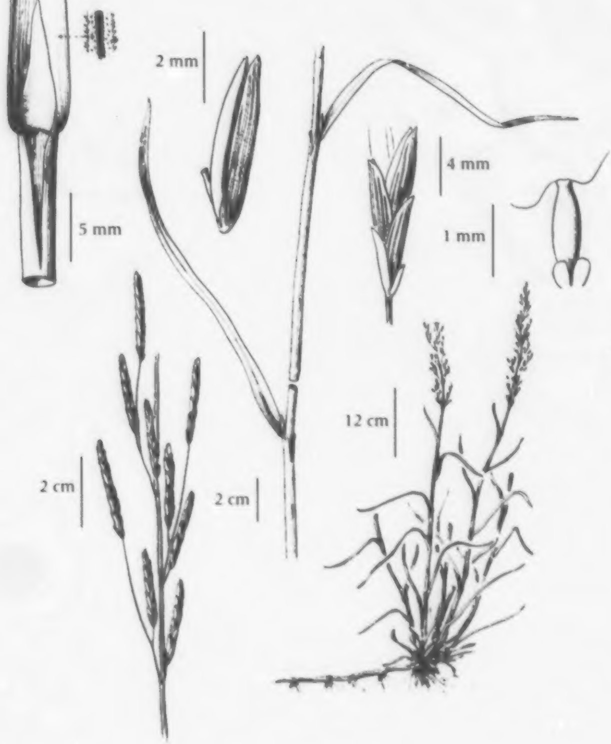
Bogs, lakeshores and moist to wet meadows in the lowland to subalpine zones; common in S BC south of 55° N, infrequent northward, absent on the Queen Charlotte Islands; N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, usually strongly tufted grass from rhizomes; stems erect to more or less decumbent, hollow, up to (20) 30-80 (100) cm tall.

Leaves: Sheaths somewhat flattened, minutely rough, the hairs directed backwards, usually closed to the tops and often split; blades 2-5 (6) mm wide, flat or folded, mostly erect, minutely rough; ligules cut off at the ends to blunt, usually closed in the front unless split, minutely rough, the margins more or less irregularly jagged, 1.5-3 (4) mm long, the lower leaf ligules mostly 1-3 mm long.

Flowers: Inflorescence a loose panicle, 7-20 cm long, the slender branches usually ascending; spikelets mostly (3-) 4- to 7-flowered, egg-shaped, about 3.8 mm long and 1.5 mm wide; glumes egg-shaped, usually more or less fringed with fine hairs, the margins more or less jagged, usually rounded to blunt, the lower ones 0.6-1.5 mm long, the upper ones about 0.9-2.3 mm long; lemmas broad, firm, barely 2 mm long, prominently 7-nerved, smooth or minutely rough on the nerves, the marginal nerves less conspicuous; paleas abruptly notched, the slits narrow, concealed by the lemmas; stamens 2; anthers 0.4-0.6 mm long.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5 mm
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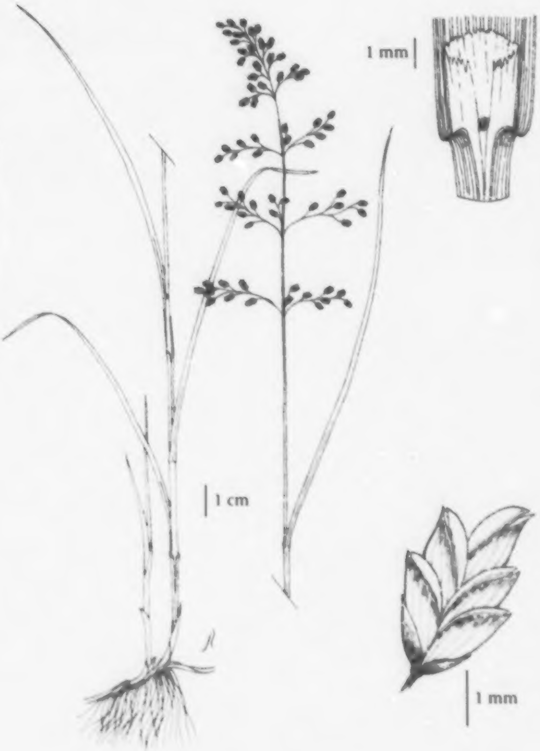
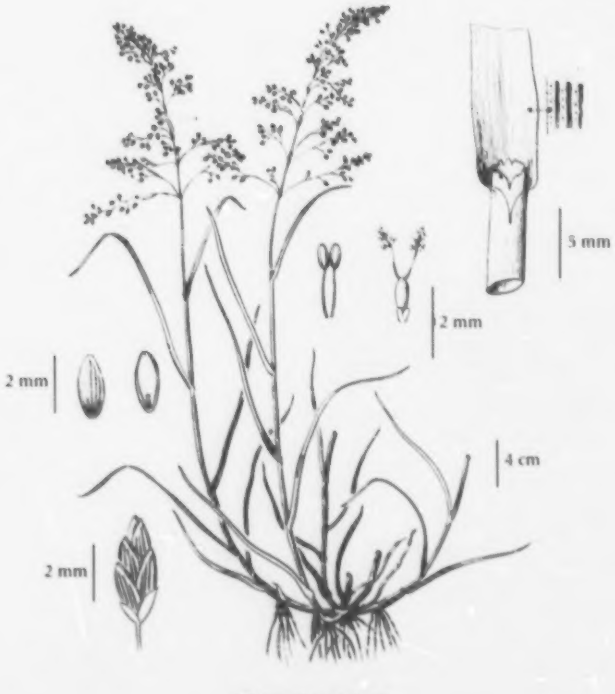
1 mm
12 cm
2 cm
2 cm

Glyceria occidentalis



Glyceria pulchella


5 mm
2 mm
2 mm
4 cm
2 mm

Glyceria striata

HELICTOTRICHON

Helictotrichon hookeri **(Scribn.) Henrard** (*Avenochloa hookeri* [Scribn.] Holub)

spike-oat

HABITAT/RANGE:

Mesic to dry forest openings, grassy slopes and meadows in the montane and subalpine zones; rare in N BC; N to SW YT and SW NT, E to S MB, disjunct in SW PQ and S to MN, SD and NM.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect, hollow, 25-40 cm tall.

Leaves: Sheaths open, compressed; blades 2-4 mm wide, usually folded, minutely rough, the margins thickened, usually whitish; ligules more or less irregularly jagged, 1-3 mm long.

Flowers: Inflorescence a tight panicle, up to 10 cm long, the branches erect, bearing 1 or 2 spikelets; spikelets mostly 4- to 6-flowered; lower glumes 12 (15) mm long, the upper ones 14 (15) mm long; lemmas hardened at the base, with a densely bearded callus, lower lemmas 10-13 mm long, with awns up to 15 mm long, the awns flattened, twisted, abruptly bent; paleas abruptly notched, the slits narrow, concealed by the lemmas; anthers 4-5 mm long; lodicules linear-lanceolate, about 2 mm long.

HESPEROSTIPA[15]

1. Lemmas evenly hairy with white hairs to occasionally smooth above the calluses; ligules of the lower leaves thin, pointed and ragged along the edges .... *H. comata*

1. Lemmas with brown hairs at the base and along the margins, smooth to sparsely hairy elsewhere; ligules of the lower leaves thick, rounded, not ragged.

    2. Lemmas 8.5-14 mm long; awns 50-105 mm long; lower nodes smooth, occasionally hairy .... *H. curtiseta*

    2. Lemmas 15-25 mm long; awns 90-180 mm long; lower nodes with lines of hairs .... *H. spartea*

Hesperostipa comata **(Trin. & Rupr.) Barkw.** (*Stipa comata* Trin. & Rupr. = ssp. *comata*; *S. comata* var. *intermedia* Scribn. & Tweedy = ssp. *intermedia*)

needle-and-thread grass

HABITAT/RANGE:

Dry, open grassy slopes in the steppe and montane zones; common in SC and SE BC, infrequent northward; N to YT, E to PQ and S to NY, MI, IL, IA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect, 30-70 cm tall.

Leaves: Sheaths smooth to rough, strongly ribbed, not fringed along the margins; blades in-rolled and 0.5-2 mm wide, or if flat, up to 4 mm wide; ligules of the upper leaves to 7 mm long, usually pointed, sometimes jagged at the tips.

Flowers: Inflorescence a loose, but narrow panicle, 10-28 cm long, the branches ascending; glumes narrow, nearly equal, papery; lower glumes 18-35 mm long, upper glumes 1-3 mm shorter; lemmas 7-13 mm long, evenly covered with 1 mm-long white hairs or smooth across the back of the lemma, awned, the awns firm and straight or zig-zagged and curved, 5-30 cm long; calluses 2-4 mm long, hairy.

Notes: Two subspecies occur in BC:

1. Terminal segment of the awn firm, straight or almost so, usually less than 5.5 cm long .... ssp. *intermedia* (Scribn. & Tweedy) Barkw.

1. Terminal segment of the awn zig-zagged, curved, usually more than 5.5 cm long .... ssp. *comata*

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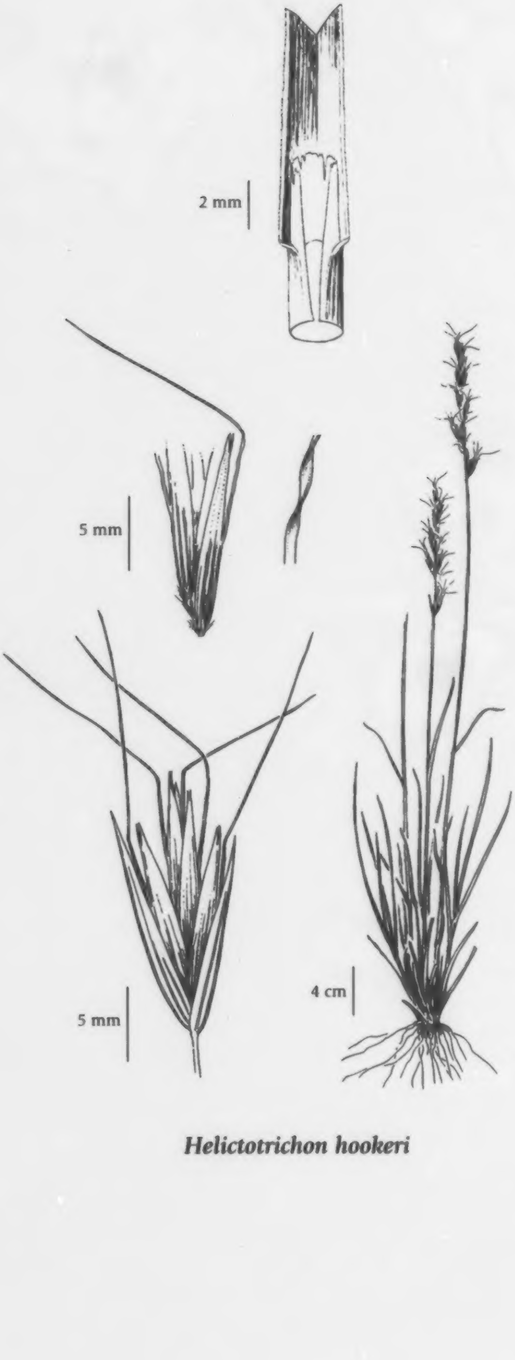
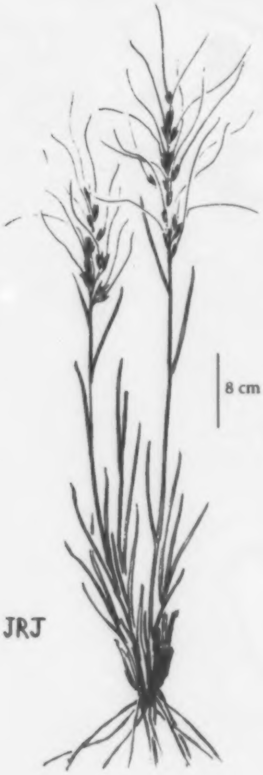
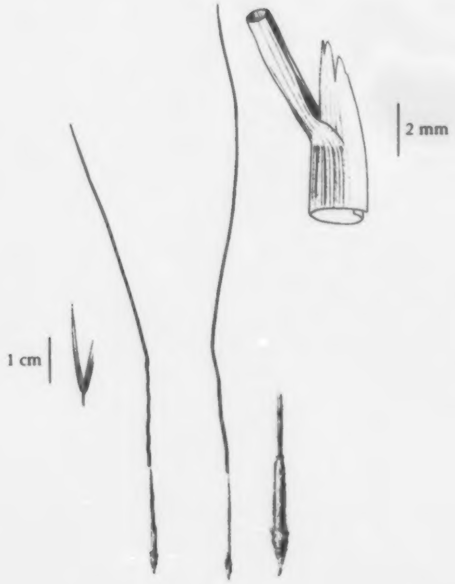
[15] Contributed by H. Stewart and M.E. Barkworth.


2 mm
5 mm
5 mm
4 cm

Helictotrichon hookeri



ssp. ***comata***



ssp. ***intermedia***

Hesperostipa comata

Hesperostipa curtiseta **(A. S. Hitchc.) Barkw.** (*Stipa curtiseta* [A. S. Hitchc.] Barkw., *S. spartea* var. *curtiseta* A. S. Hitchc.)

short-awned porcupinegrass

HABITAT/RANGE:

Dry, open grassy slopes in the steppe and montane zones; frequent in SC and SE BC; N to NT, E to MB and S to SD and WY.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 24-65 cm tall; lower nodes usually smooth, sometimes evenly hairy but not with lines of hairs, nodes sometimes concealed by the lower sheaths.

Leaves: Lower sheaths smooth; blades 1.3-3 mm wide; lower ligules 0.2-1 mm long, stiff, blunt or rounded, highest at the sides; upper ligules to 3.5 mm long, blunt to rounded.

Flowers: Inflorescence a loose, but narrow panicle, 6-24 cm long; glumes unequal, 15-30 mm long; lemmas mostly smooth, but the base and margins with brown hairs, 8.5-14 mm long, awned, the awns twice bent, 50-105 mm long, rough throughout, the tips straight; calluses 3-5 mm long.

Hesperostipa spartea **(Trin.) Barkw.** (*Stipa spartea* Trin.)

porcupinegrass

HABITAT/RANGE:

Dry to mesic grassy slopes and open forests in the steppe and montane zones; rare in SC BC; E to ON and S to PA, OH, IN, MO, OK and NM.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 45-140 cm tall, the lower nodes usually crossed by lines of hairs, occasionally smooth.

Leaves: Lower sheaths with a fringe of hairs along the margins; blades flat to inrolled, 1.5-4.5 mm wide; lower ligules 0.3-3 mm long, stiff, blunt to rounded, fringed not toothed or ragged along the margins; upper ligules 3-7.5 mm long, pointed, thin and often ragged along the margins.

Flowers: Inflorescence a panicle, 10-25 cm long, the branches ascending to erect; glumes unequal, slender, pointed, 22-45 mm long; lemmas 15-25 mm long, mostly smooth but the base and margins with brown hairs, awned, the awns bent, 90-180 mm long, the tip segments rough and straight; calluses 3.5-6 mm long.

HIEROCHLOË

1. Sterile lemmas conspicuously awned from deeply bidentate tips; ligules consisting of 1/2 basal membrane and 1/2 terminal fringe of hairs .... *H. alpina*
1. Sterile lemmas awnless; ligules mostly membranous, slightly jagged and more or less fringed with fine hairs .... *H. hirta*

Hierochloë alpina **(Swartz) Roem. & J.A. Schult.** (*Anthoxanthum monticolum* [Bigelow] Veldk.)

alpine sweetgrass

HABITAT/RANGE:

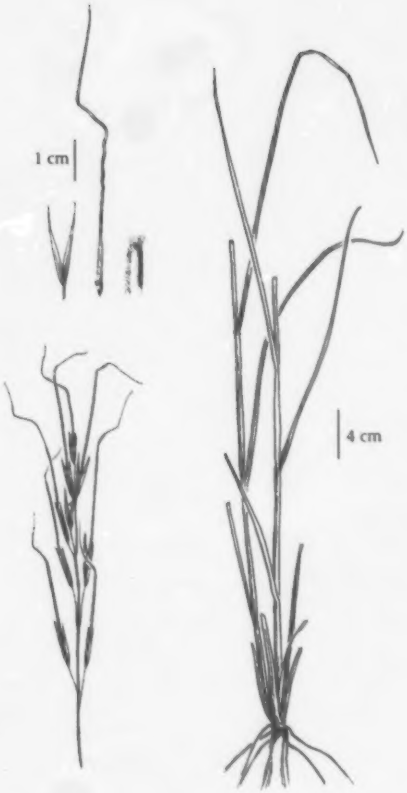
Mesic to dry meadows and rocky slopes in the subalpine and alpine zones; common in N BC, rare S in the Coast Mountains to 52° 45' N; circumpolar, N to AK, YT and NT, E to SW AB, disjunct to ON, PQ and NF and S to ME, NH and NY; Greenland, Eurasia.

DESCRIPTION:

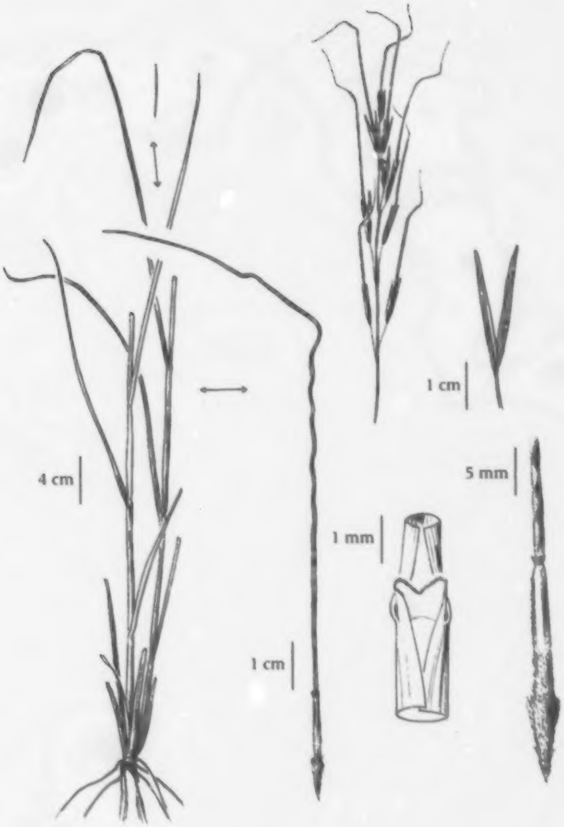
General: Perennial, tufted grass from short rhizomes; stems erect, hollow, smooth, 15-40 cm tall.

Leaves: Sheaths open, smooth; blades 1-3 mm wide, in-rolled or flat, smooth on the lower surfaces, hairy on the upper surfaces; ligules consisting of 1/2 basal membrane and 1/2 terminal fringe of hairs, about 0.6 mm long.

Flowers: Inflorescence a contracted panicle, 1.5-4.5 (5.5) cm long; spikelets 3-flowered, including 2 sterile or male lower florets, tawny, short-stalked, 5-8 mm long; glumes about equal to the lemmas; lower 2 lemmas hairy, awned, the awns arising from fairly deeply bidentate tips, the awns of the lower sterile lemmas straight, 2-4 mm long, the awns of the upper sterile lemmas about 4-8 mm long, twisted, abruptly bent, arising at about midlength or below, the fertile lemmas hairy towards the tips, unawned; anthers about 1.2 mm long; lodicules narrowly egg-shaped to lanceolate, slightly jagged and lobed.



Hesperostipa curtiseta


4 cm
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1 cm
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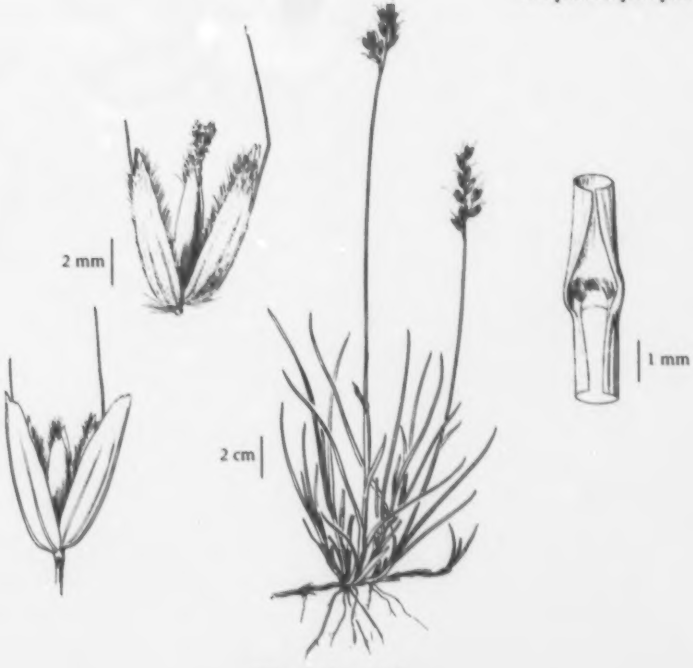
Hesperostipa spartea



Hierochloë alpina

***Hierochloë hirta* (Schrank) Borbás ssp. *arctica* (J. Presl) G. Weim.** (*Anthoxanthum hirtum* [Schrank] Y. Schouten & Veldcamp ssp. *arcticum* [J. Presl] G. Tucker, *H. arctica* J. Presl, *H. odorata auct. non* (L.) Beauv., *H. odorata* ssp. *arctica* [J. Presl] Tzvelev)

common sweetgrass

HABITAT/RANGE:

Moist meadows and forest openings from the lowland to subalpine zones; frequent in BC east of the Coast-Cascade Mountains, rare on Vancouver Island and the lower mainland; circumpolar, N to AK, YT and NT, E to PQ and NB and S to ME, MA, NH, PA, NC, KT, IA, NE, NM, UT, NV and CA; Greenland, Iceland, Eurasia.

DESCRIPTION:

General: Perennial, tufted or solitary grass from rhizomes; stems erect, hollow, smooth, the collars usually smooth, 30-70 cm tall.

Leaves: Sheaths open, smooth to short-hairy (on new leaves), purplish at the base, the collars on the new leaves usually white short-hairy; blades 3-5 mm wide and up to 25 cm long on the new leaves, those along the stems greatly shortened, 1-2 cm long; ligules mostly membranous, slightly eroded-jagged and more or less fringed with fine hairs, blunt to sharp-pointed, 3-5 mm long.

Flowers: Inflorescence an open, pyramidal panicle, 5-10 (12) cm long; spikelets 3-flowered, including 2 sterile or male florets, tawny, short-stalked, 5-6 mm long; glumes about equal to or slightly exceeding the lemmas; sterile lemmas strongly hairy, unawned, entire, sharp-pointed, nearly equal to each other, the fertile lemmas hairy toward the tips; anthers about 1.7 mm long; lodicules narrowly cylindrical, nearly entire, about 1.5 mm long.

HOLCUS

1. Plants rhizomatous; upper lemma awns curved or bent; stems smooth except at the bearded nodes .... *H. mollis*
1. Plants tufted; upper lemma awns hooked; stems usually hairy above and below the nodes .... *H. lanatus*

***Holcus lanatus* L.**

common velvet-grass; Yorkshire fog

HABITAT/RANGE:

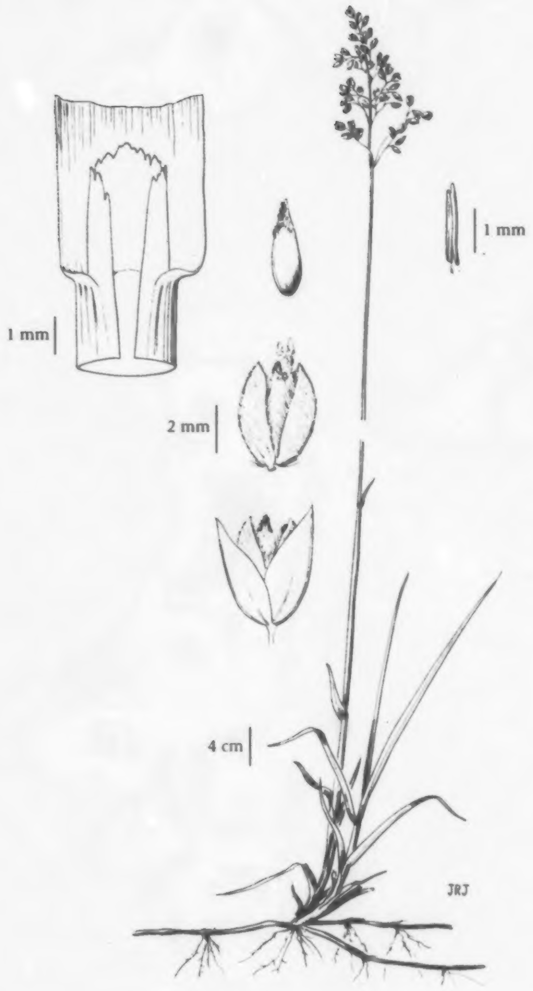
Mesic to dry lawns, fields, roadsides, railways and waste areas; common in coastal BC, rare elsewhere in BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect (sometimes becoming decumbent and creeping in lawns), hollow, hairy above and below the nodes, (20) 50-100 cm tall.

Leaves: Sheaths open, velvety-hairy, greyish; blades 3-10 mm wide and up to 25 cm long, flat, velvety-hairy, greyish; ligules strongly hairy, eroded-jagged and more or less fringed with fine hairs, blunt to sharp-pointed, 1-2 mm long.

Flowers: Inflorescence a greyish, purplish-tinged panicle, 4-15 cm long; spikelets 2-flowered, the upper floret male, tawny, short-stalked, 5-6 mm long; glumes 3-4 mm long, more or less stiff long-hairy, especially on the nerves, the upper ones much wider than the lower ones, often with very short awns almost at the tips; lemmas about 2 mm long, smooth or slightly short-hairy above, shiny, the lower ones unawned, the upper ones awned, the awns hooked, shorter than the glumes; rachillas sparsely stiff-hairy or sometimes smooth, anthers about 1.5 mm long; lodicules broadly lanceolate, nearly entire, up to 0.5 mm long.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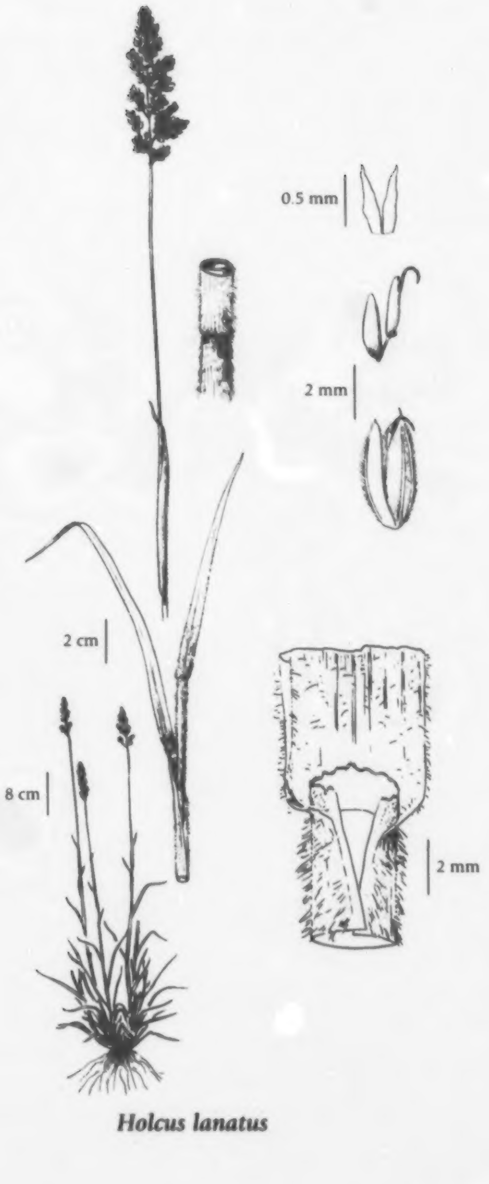
4 cm
JRJ

Hierochloë hirta **ssp.** *arctica*


0.5 mm
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8 cm
2 mm

Holcus lanatus

Holcus mollis **L.**

creeping softgrass; creeping velvet-grass

HABITAT/RANGE:

Mesic to dry lawns, roadsides and moist waste areas; infrequent in SW BC; introduced from Europe.

DESCRIPTION:

General: Perennial grass from rhizomes; stems erect to decumbent, hollow, usually smooth except at the bearded nodes, the hairs directed downwards, (20) 50-100 cm tall.

Leaves: Sheaths open, usually smooth; blades (3) 4-10 mm wide, flat, sometimes somewhat hairy; ligules finely short-hairy, strongly eroded-jagged and more or less fringed with fine hairs, 2-3 mm long.

Flowers: Inflorescence a greyish, purplish-tinged panicle, 4-15 cm long; spikelets 2-flowered, the upper floret male, tawny, short-stalked, 5-6 mm long; glumes (4) 4.5-5.5 mm long, long-pointed, usually at least hairy on the keels; lemmas about 2.2 mm long, strongly bearded on the calluses, the lower ones unawned, the upper ones awned, the awns curved or bent, exserted, arising from somewhat above midlength; rachillas sparsely stiff-hairy or sometimes smooth, anthers about 1.7 mm long; lodicules linear-lanceolate, about 0.7 mm long.

HORDEUM

1. Plants perennial, awns slender.
   2. Glumes (11) 20-90 mm long; inflorescence (with awns) nearly as wide as long; lemma awns 7-90 mm long .... *H. jubatum*
   2. Glumes 7-12 (20) mm long; inflorescence much longer than wide; lemma awns 5-10 (20) mm long .... *H. brachyantherum*
1. Plants annual or perennial, awns stout.
   3. Glumes, at least most of them, flattened and fringed with fine hairs above the base; plants annual .... *H. murinum*
   3. Glumes not flattened, smooth or rough; plants annual or perennial.
      4. Lateral spikelets unstalked, their florets fertile .... *H. vulgare*
      4. Lateral spikelets short-stalked, their florets sterile.
         5. Lateral spikelets with an awned floret; glumes more or less spreading .... *H. marinum*
         5. Lateral spikelets with a rudimentary, awnless floret; glumes more or less erect .... *H. depressum*

Hordeum brachyantherum **Nevski ssp. *brachyantherum*** (*H. jubatum* L. var. *breviaristatum* [Nevski] Bowden, *H. nodosum auct. non* L.)

meadow barley

HABITAT/RANGE:

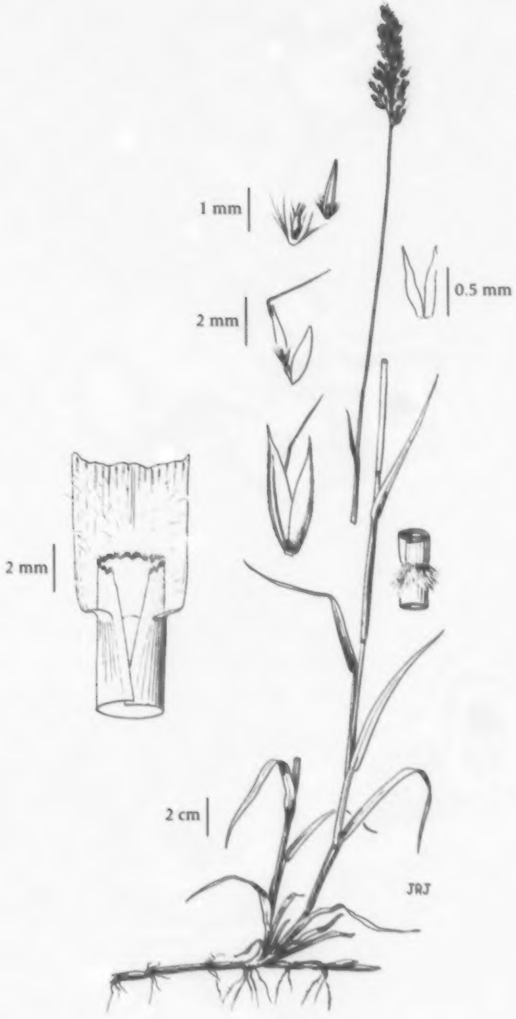
Tidal marshes and moist to mesic saline meadows, sandy beaches and rocky bluffs in the lowland zone and mesic meadows and forest openings in the montane zone; common in coastal BC, infrequent elsewhere in BC north to 55° N; N to AK and YT, E to SK and disjunctly E to NF and S to ME, NH, PA, IN, TX, NM, AZ and CA.

DESCRIPTION:

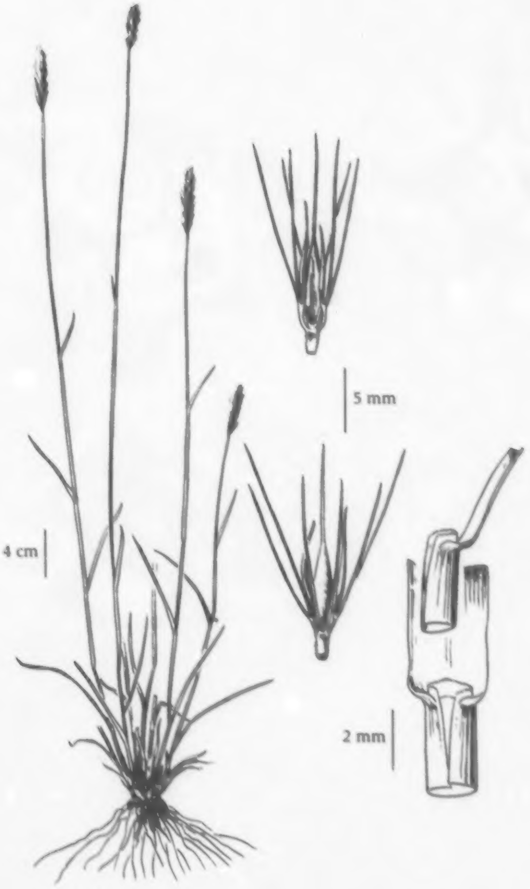
General: Perennial, tufted grass from fibrous roots; stems (20) 40-80 (100) cm tall.

Leaves: Sheaths open, smooth to finely more or less appressed-hairy or spreading hairy; blades smooth to finely more or less appressed-hairy or spreading hairy, 2-6 (9) mm wide; ear-shaped lobes at the leaf-bases lacking; ligules more or less fringed with fine hairs, barely 0.5 mm long.

Flowers: Inflorescence an erect spike, 5-10 cm long, longer than wide; central spikelets unstalked, the lateral ones short-stalked, the stalks curved, stiff-hairy, about 1 mm long; glumes all slender, awnlike, 7-12 (20) mm long; central florets usually with awns exceeding the glumes, the lateral florets mostly sterile, often awnlike, but sometimes with all male flowers; lemma awns 5-10 (20) mm long; anthers 1-1.5 mm long.


1 mm
0.5 mm
2 mm
2 mm
2 cm
JRJ

Holcus mollis



Hordeum brachyantherum ssp. *brachyantherum*

Hordeum depressum **(Scribn. & J.G. Sm.) Rydb.**

low barley

HABITAT/RANGE:

Dry roadsides and waste areas in the lowland zone; rare on S Vancouver Island; introduced from the SW US.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems often bent at the base, 5-45 cm tall.

Leaves: Sheaths open, smooth or stiff-hairy, the upper ones usually somewhat inflated; blades usually soft-hairy, 1-3 (4) mm wide; ear-shaped lobes lacking at the leaf-bases; ligules more or less fringed with fine hairs, 0.1-0.5 mm long.

Flowers: Inflorescence an erect spike, 1.5-3.5 (6) cm long (excluding the awns), usually exserted from the sheath; central spikelets unstalked, the lateral ones short-stalked, the stalks usually straight or slightly curved, rough, about 1 mm long; glumes more or less erect, all bristlelike or only slightly broadened above the usually hardened and outwardly curved base, up to 0.6 mm wide, the awns usually subequal and slightly shorter than that of the lemmas of the central spikelets; the lateral spikelets with sterile, rudimentary florets, borne on curved stalklike rachilla joints about 0.5 mm long, the lemmas short-awned; anthers 0.6-1 mm long.

Hordeum jubatum **L.** (*H. caespitosum* [Scribn.] A.S. Hitchc. = ssp. *intermedium*)

foxtail barley

HABITAT/RANGE:

Moist to dry, often alkaline, lakeshores, meadows, roadsides and waste places in the lowland, steppe and montane zones; frequent in S BC, infrequent northward; circumpolar, N to AK, YT, and NT, E to NF and S to SC, TN, AR, TX, NM, AZ, MX and CA; Eurasia, S America.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, smooth to densely soft-hairy; stems 20-50 (60) cm tall.

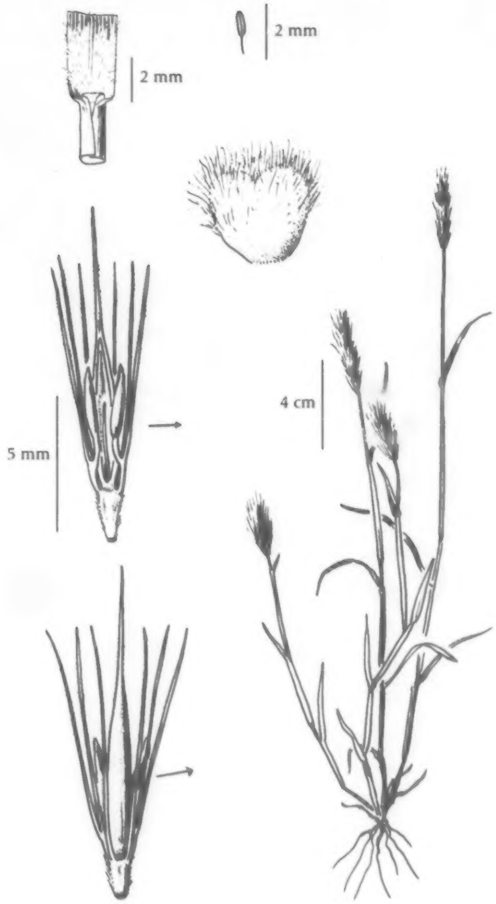
Leaves: Sheaths open; blades 2-4 (5) mm wide, sparsely hairy just above the ligules; ear-shaped lobes usually present on at least some leaf-bases, barely 0.5 mm long; ligules 0.2-0.6 mm long, blunt, more or less entire.

Flowers: Inflorescence a spike, 5-10 cm long (including awns) and almost as wide at maturity, the rachis disarticulating; central spikelets unstalked, the lateral ones short-stalked, the stalks curved, stiff-hairy, about 1-1.5 mm long; central spikelet glumes awnlike, (11) 20-90 mm long, the awns of the lateral spikelet glumes often as long as those of the central spikelets; central spikelet lemmas with awns nearly as long as the glumes, ultimately usually more or less broadly spreading, the lateral spikelet florets sterile, rudimentary to nearly as large as those of the central spikelets, then with functional anthers; anthers 1-1.5 mm long.

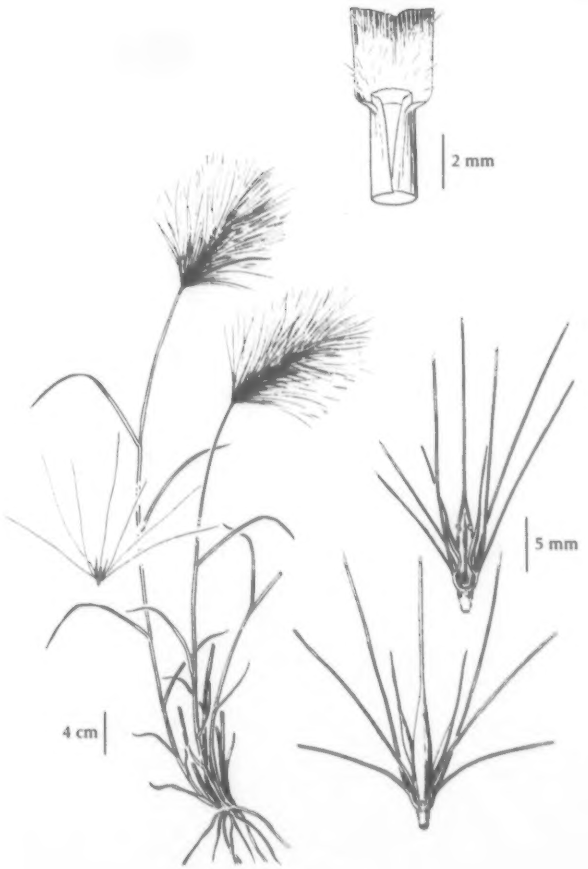
Notes: *Hordeum jubatum* hybridizes with several species in other genera of the Triticeae as well as with *H. brachyantherum*. These latter hybrids, which tend to resemble *H. jubatum* more than *H. brachyantherum*, are called *H. jubatum* ssp. *intermedium* (Barkworth 1994). The two subspecies occurring in BC may be recognized as follows:

1. Glumes 33-90 mm long; lemma awns of the central florets 33-90 mm long .... ssp. *jubatum*

1. Glumes 11-36 mm long; lemma awns of the central florets 7-36 mm long......... ssp. *intermedium* Bowden


2 mm
2 mm
4 cm
5 mm

Hordeum depressum



Hordeum jubatum ssp. *jubatum*

Hordeum marinum **Huds. ssp.** ***gussonionum*** **Thell.** (*H. geniculatum* All.)

Mediterranean barley

HABITAT/RANGE:

Dry roadsides and waste areas in the lowland zone; rare on S Vancouver Island; introduced from Europe.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems 10-40 cm tall.

Leaves: Sheaths open, the lower ones usually soft-hairy; blades usually soft-hairy, 2-4 mm wide; ear-shaped lobes often developed at some leaf-bases, but less than 0.5 mm long; ligules more or less fringed with fine hairs, less than 0.5 mm long.

Flowers: Inflorescence an erect spike, 1.5-4 cm long, usually exserted from the sheath; central spikelets unstalked, the lateral ones short-stalked, the stalks usually straight or slightly curved, rough, about 1 mm long; glumes all bristlelike or only slightly broadened above the usually hardened and outwardly curved base, not over 0.6 mm wide, the awns usually subequal and slightly shorter than that of the lemmas of the central spikelets; central spikelet lemmas with awns 5-15 (18) mm long, the lateral with sterile, rudimentary florets, borne on curved stalklike rachilla joints about 0.5 mm long, the lemmas short-awned; anthers barely 1 mm long.

Hordeum murinum **L.** (*H. glaucum* Steud. = ssp. *glaucum*; *H. leporinum* Link = ssp. *leporinum*)

seagreen barley (ssp. *glaucum*); **charming barley** (ssp. *leporinum*); **wall barley**, mouse barley (ssp. *murinum*)

HABITAT/RANGE:

Dry roadsides and waste areas in the lowland, steppe and montane zones; rare to infrequent in SW BC (all ssp.) and SC BC (ssp. *murinum*); introduced from Europe.

DESCRIPTION:

General: Annual grass from fibrous roots; stems smooth, 20-40 (50) cm tall.

Leaves: Sheaths open, smooth; blades usually sparsely stiff-hairy to soft-hairy, mostly 3-4 (5) mm wide; ear-shaped lobes well-developed at most leaf-bases, 1-2 mm long; ligules scarcely 1 mm long.

Flowers: Inflorescence a spike, 4-7 cm long, well exserted to partially enclosed by the inflated upper sheath, the rachis disarticulating, the segments 1.7-3 mm long; spikelets 3 to a node, all well-developed, the lateral ones short-stalked; glumes of the central spikelets 2-3 cm long, stalked or unstalked, long stiff-hairy basally, central florets slightly shorter to much shorter than the lateral florets; the rachillas prolonged past the florets for 2.5-3.5 mm, bristlelike; anthers 0.4-1.3 mm long.

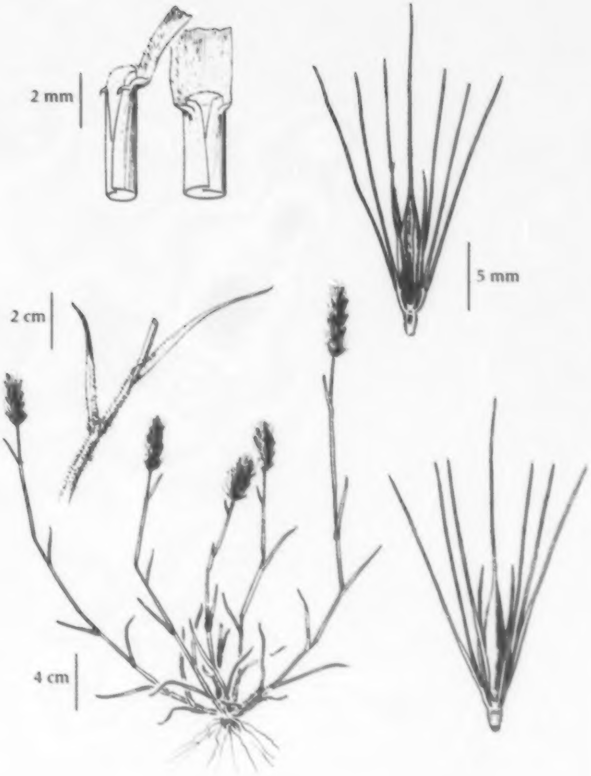
Notes: Three subspecies occur in BC:

1. Central spikelet florets unstalked or nearly unstalked, the stalk if present less than 0.5 mm long; inner glumes of the lateral spikelets narrower than either glume of the central spikelets .... ssp. *murinum*

1. Central spikelet florets stalked, the stalks 1-2 mm long; inner glumes of the lateral spikelets as wide as those of the central spikelets.

    2. Central florets slightly shorter than the lateral florets; anthers 0.5 mm long or less .... ssp. *glaucum* (Steud.) Tzvelev

    2. Central florets much shorter than the lateral florets; anthers 0.8-1.3 mm long .... ssp. *leporinum* (Link) Asch. & Grabn.


2 mm
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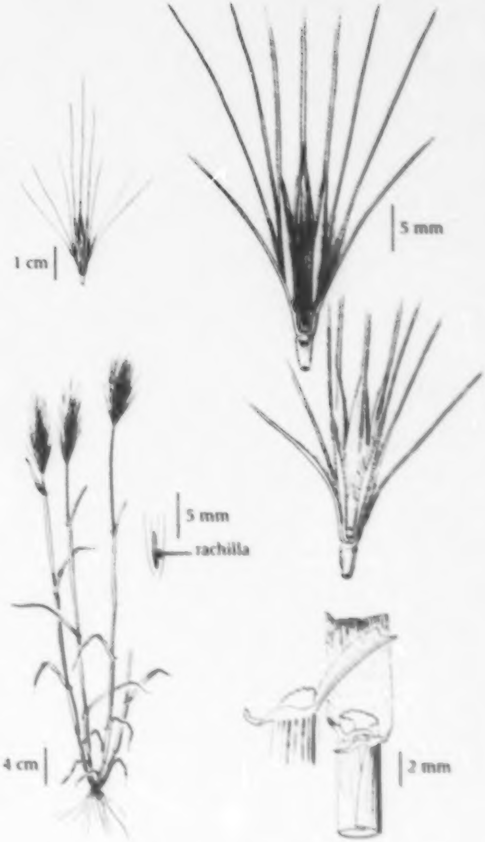
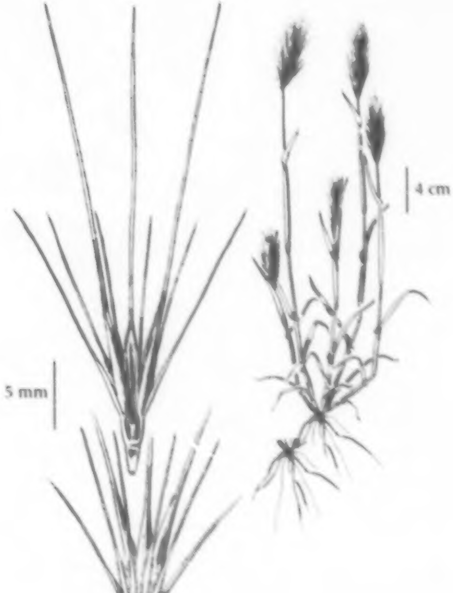
2 cm
4 cm

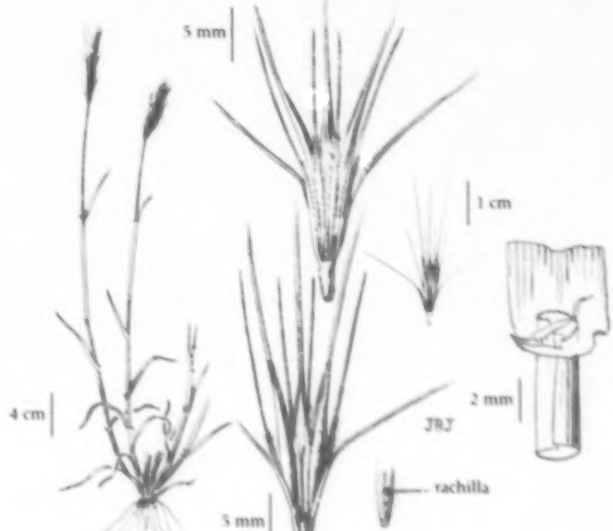
Hordeum marinum ssp. *gussonionum*


1 cm
5 mm
5 mm
rachilla
4 cm
2 mm

Hordeum murinum ssp. *murinum*



Hordeum murinum ssp. *glaucum*


5 mm
1 cm
4 cm
2 mm
JRJ
rachilla
5 mm

Hordeum murinum ssp. *leporinum*

***Hordeum vulgare* L.**
common barley
HABITAT/RANGE:
Dry roadsides and waste areas in the lowland and montane zones; rare in SW and SC BC; introduced from Europe.
DESCRIPTION:
General: Annual grass from fibrous roots; stems smooth, mostly 80-120 cm tall.

Leaves: Sheaths open, smooth; blades mostly (5) 10-15 mm wide; ear-shaped lobes at leaf-bases well-developed; ligules 0.5-1 mm long.

Flowers: Inflorescence a stout spike; spikelets 3 to a node, unstalked, well-developed and fertile; glumes narrow, usually awned; lemmas awned, the awns 10-15 mm long, sometimes unawned but more or less prominently 3-lobed at the tips.

KOELERIA

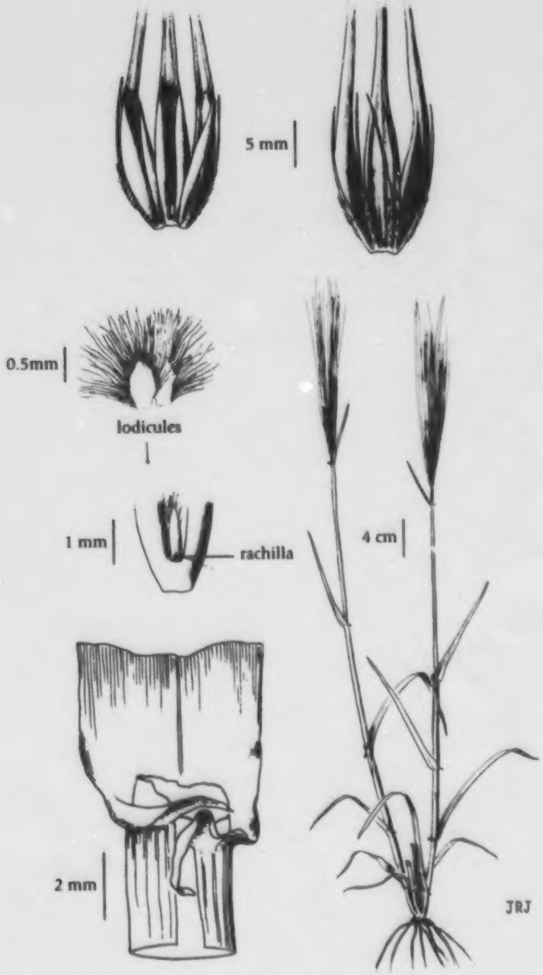
***Koeleria macrantha* (Ledeb.) J. A. Schult. f.** (*K. gracilis* Pers., *K. cristata* Pers., *K. nitida* Nutt., *K. pyramidata* [Lam.] Beauv.)
junegrass
HABITAT/RANGE:
Dry rocky or grassy slopes and forest openings in the steppe to subalpine zones; common in SC and SE BC, less frequent in SW and N BC; circumpolar, N to AK, YT and SW NT, E to Labr. and S to ME, NY, OH, AL, MS, TX, NM, AZ, CA and MX; Eurasia.
DESCRIPTION:
General: Perennial, strongly tufted grass from fibrous roots; stems smooth to soft-hairy, (20) 30-60 cm tall.

Leaves: Sheath margins usually not overlapping above, the collars often with long, straight hairs 1-1.5 mm long; blades 1-2 (4.5) mm wide, 2-6 (20) cm long, sometimes flat, but usually folded to in-rolled, usually rough to densely hairy or short stiff-hairy or both, rarely smooth, often greyish, the margins at the insertions often with long, straight hairs 1-1.5 mm long, the tips strongly prowlike; ligules 0.5-2 mm long, strongly hairy, jagged to nearly entire, more or less fringed with fine hairs.

Flowers: Inflorescence a spikelike panicle, 4-13 cm long, the short branches spreading at flowering; spikelets 2- (3- or 4-) flowered; glumes unawned or rarely awn-tipped, the lower ones 3.5 mm long, the upper ones 4-6 mm long, somewhat wider than the lower ones and about equalling or slightly exceeding the lower florets, sparsely to copiously rough short-hairy; lemmas 3.5-5 mm long, minutely rough to short-hairy, unawned or awn-tipped; anthers about 2 (2.5) mm long.

Notes: A general consensus has yet to be reached regarding which name is best for this species. For a discussion of the problems involved see Hitchcock *et al.* (1969:609) and Holmgren and Holmgren (1977:254).

F-3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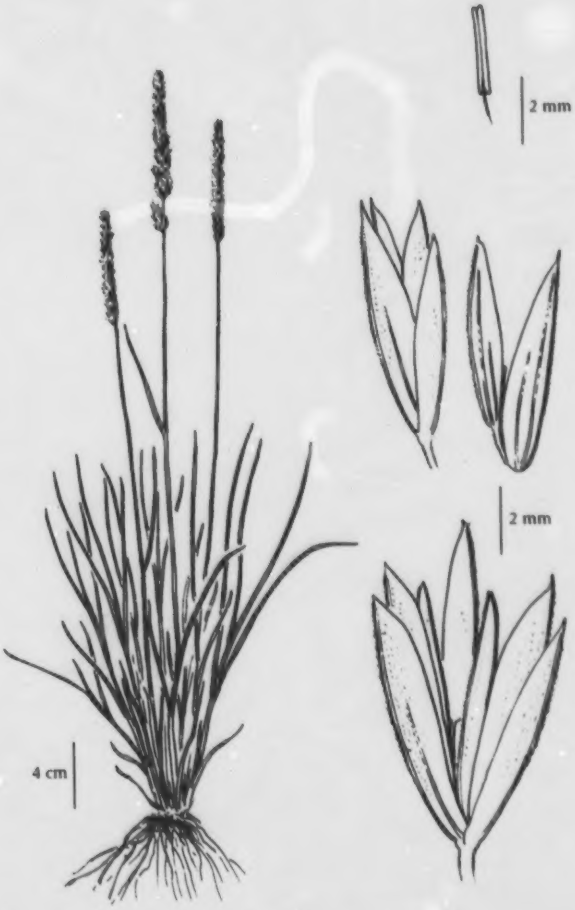
rachilla
4 cm
2 mm
JRJ

Hordeum vulgare



Koeleria macrantha

LEERSIA

Leersia oryzoides **(L.) Swartz**

rice cutgrass

HABITAT/RANGE:

Swamps, lakeshores and wet ditches in the lowland and steppe zones; rare in SC BC (Osoyoos and Ellison Lakes) and SW BC (lower Fraser Valley); circumpolar, E to NB and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA; Eurasia, S America.

DESCRIPTION:

General: Perennial grass from rhizomes; stems smooth, (30) 60-150 (200) cm tall.

Leaves: Sheaths rough, the hairs angled backwards; blades (2) 6-10 mm wide, 2-6 (20) cm long, flat, strongly roughened on the margins with the hairs angled backwards, abruptly narrowed just below the base, the 2 margins freed from the sheaths at about the same level; ligules smooth, minutely jagged, more or less fringed with fine hairs, blunt, about 1 mm long.

Flowers: Inflorescence a panicle, 10-20 cm long, with reduced, axillary panicles in the upper sheaths that often bear spikelets that are small, closed, infertile; glumes lacking; lemmas about 5 mm long, bristly-hairy, unawned; paleas equalling the lemmas; anthers 1-1.5 mm long; lodicules 0.3-0.4 mm long.

LEPTOCHLOA

Leptochloa fascicularis **(Lam.) A. Gray**

sprangletop

HABITAT/RANGE:

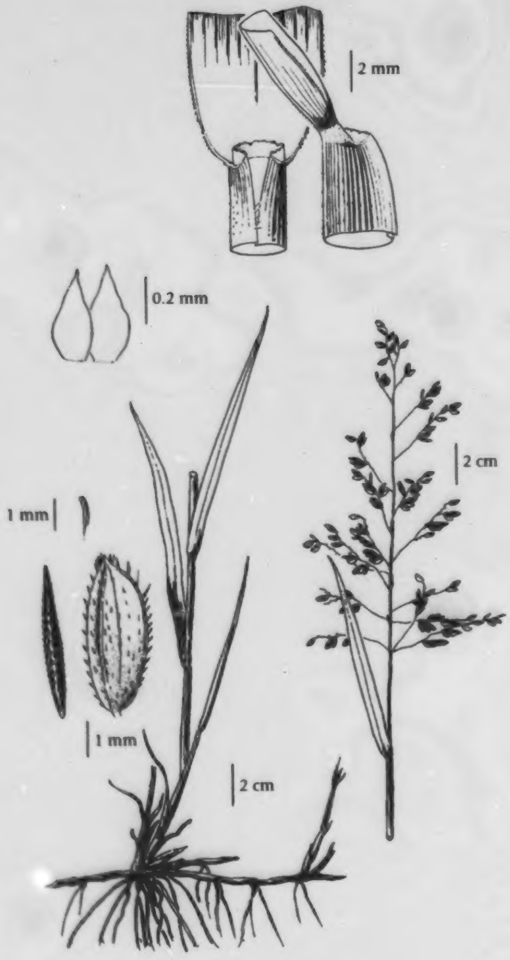
Mesic to dry waste areas in the lowland zone; rare in the Vancouver area; introduced from the E U.S.

DESCRIPTION:

General: Annual, loosely tufted grass from fibrous roots; stems erect or decumbent, branched, 10-40 (70) cm tall.

Leaves: Sheaths smooth, somewhat inflated below and tapering above, sometimes diverging from the stems, strongly keeled; blades 2-6 (20) cm long, 1-2 (3) mm wide, mostly in-rolled, if flat, 1.5-3 (5.5) mm wide, smooth to minutely rough, ascending and extending beyond the panicles; ligules smooth, membranous, lanceolate, pointed to rounded, the margins entire to irregular jagged, often decurrent, 2-7 mm long.

Flowers: Inflorescence a panicle, 7-20 (40) cm long, usually partly enclosed by the upper sheaths; spikelets on 1 side of the rachis, 5- to 9- (12-) flowered, (7) 9-12 mm long not including the awns, in spikelike racemes (3) 5-8 (10) cm long; flowers probably self-fertilized; glumes 1-nerved, rough on the nerves, otherwise smooth, the lower glumes 2.2-4 mm long, lanceolate to linear, the upper ones 3.7-5 (6) mm long, lanceolate, with awns 0.5-1.5 mm long; lemmas (3.5) 4-5 mm long, 3-nerved, the 2 lateral nerves near the margins and the 3 nerves appressed-hairy at least basally, awned from bifid tips, the awns 2-3.5 mm long; paleas subequal to the lemmas, with appressed-ascending hairs near the margins; anthers 0.2 mm long; lodicules about 0.3 mm long.


2 mm
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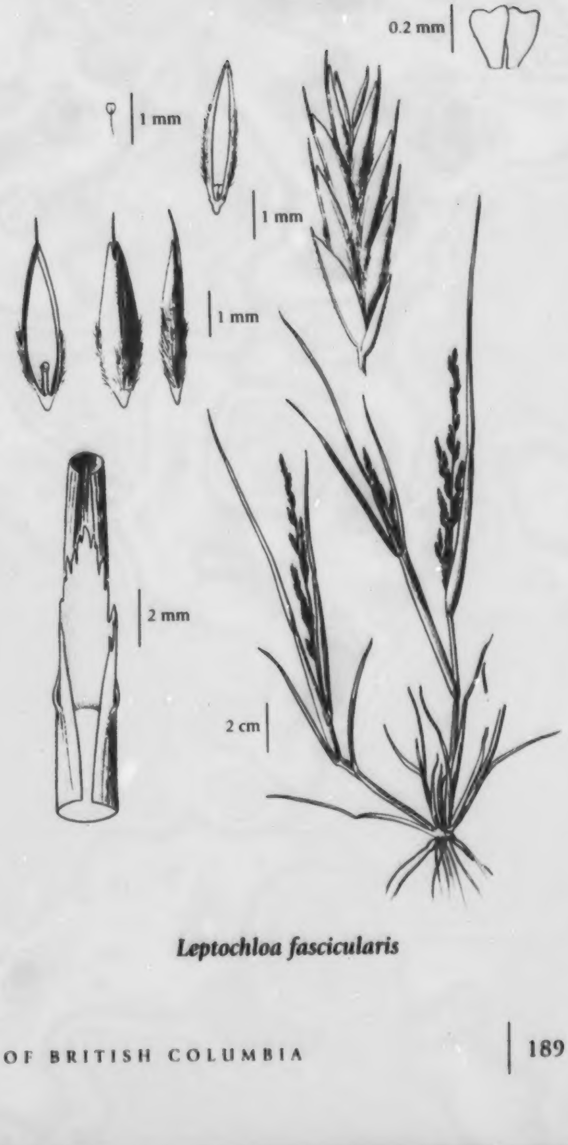
1 mm
1 mm
2 cm

Leersia oryzoides


0.2 mm
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1 mm
2 mm
2 cm

Leptochloa fascicularis

LEYMUS[16]

1. Ligules mostly at least 2 mm long; leaf blades usually flat, (5) 8-20 mm wide; spikelets 2 or more per node .... *L. cinereus*

1. Ligules rarely as much as 2 mm long; leaf blades often either in-rolled or less than 8 mm wide; spikelets rarely more than 2 per node.

    2. Glumes flat, lanceolate, prominently 3- to 6-nerved; anthers 5-9 mm long; lemmas hairy; coastal beach plants .... *L. mollis*

    2. Glumes narrow, awl-like, nerveless, prominently 1-nerved or less conspicuously 1- to 3-nerved; anthers (2) 3-5 (7) mm long; lemmas smooth or hairy; plants from east of the Coast-Cascade Mountains or if coastal, then lemmas smooth.

        3. Lemmas usually smooth or sparsely short-hairy, awnless or rarely awn-tipped, the awns then 4-6 mm long; plants coastal .... *L. triticoides*

        3. Lemmas strongly hairy, merely awn-tipped or with awns up to 3 (4) mm long; plants from east of the Coast-Cascade Mountains .... *L. innovatus*

Leymus cinereus **(Scribn. & Merr.) A. Löve** (*Elymus cinereus* Scribn. & Merr., *E. piperi* Bowden)
giant wildrye

HABITAT/RANGE:

Moist to dry, usually gravelly or sandy sites, ravines, streambanks and roadsides in the steppe and montane zones; frequent in SC BC, infrequent in SE BC; E to SK and S to MN, NM, AZ and CA.

DESCRIPTION:

General: Perennial, coarsely tufted grass from short, smooth to strongly short-hairy rhizomes forming large clumps up to 1 m wide; stems solitary or in groups, usually finely short-hairy or smooth, especially near the nodes, 70-220 cm tall.

Leaves: Sheaths open; blades tough, rough to sometimes finely hairy, mostly flat, (5) 8-20 mm wide; ear-shaped lobes usually well-developed at some leaf-bases; ligules usually short-hairy, membranous, (2) 3-7 mm long.

Flowers: Inflorescence a stiff, erect spike, (9) 12-20 (25) cm long, sometimes compound, the lateral branches with as many as 5 or 6 spikelet-bearing nodes; spikelets sometimes paired, but usually 3 or more per node, (3-) 4- to 6-flowered, often 1 or more stalked; glumes narrow, awl-like, tapered from the base, 10-20 mm long, often as long as the spikelets; lemmas smooth to inconspicuously hairy, about 10-15 mm long, unawned or more usually awn-tipped, the awns 2-7 mm long; anthers 3-6 mm long.

Leymus innovatus **(Beal) Pilger** (*Elymus innovatus* Beal)
fuzzy-spiked wildrye

HABITAT/RANGE:

Mesic to dry meadows, river terraces, grassy slopes and forests in the montane zone; frequent in SC and SE BC, less frequent in NW and NE BC; N to AK, YT and NT, E to ON and S to SD and WY.

DESCRIPTION:

General: Perennial, tufted grass from rhizomes; stems usually slightly hairy below the nodes and the inflorescence, mostly 40-80 (100) cm tall.

Leaves: Sheaths open, minutely short appressed-hairy; blades stiff, usually smooth on the lower surfaces and minutely rough above, strongly in-rolled, 2-4 mm wide; ear-shaped lobes well-developed, prominent; ligules jagged with fine hairs, less than 1 mm long.

Flowers: Inflorescence an erect spike, 4-9 (10) cm long, but rarely the lowest pair of spikelets considerably distant and the overall length of the spike up to 15 cm long; spikelets mostly paired, 3- to 5-flowered, unstalked, often purplish, the lowest 1 to 3 pairs usually much shorter than the internodes of the rachis, the upper ones 2 to 3 times as long; glumes very narrow, awl-like, stiff, hairy, nerveless or inconspicuously 1- to 3-nerved, 5-12 mm long, awn-tipped; lemmas long-hairy to appressed-hairy, 7-9 mm long, merely awn-tipped or with awns up to 3 (4) mm long; paleas subequal to the lemmas; anthers about 5 mm long.

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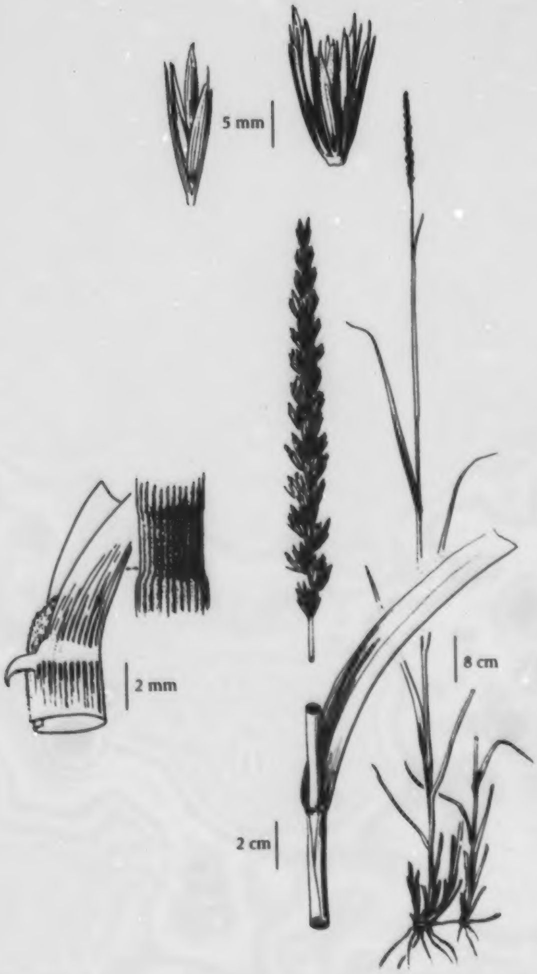
[16] Contributed by H. Stewart and M.E. Barkworth.


5 mm
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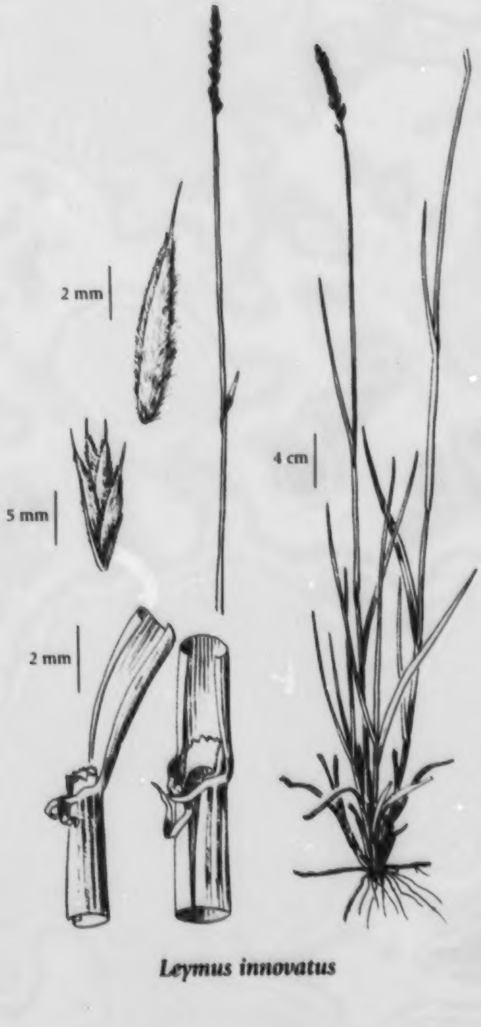
8 cm
2 cm

Leymus cinereus


2 mm
4 cm
5 mm
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Leymus innovatus

Leymus mollis **(Trin.) Pilger ssp.** ***mollis*** (*Elymus arenarius auct. non* L., *E. mollis* Trin.)

dune wildrye; dunegrass

HABITAT/RANGE:

Moist to mesic sandy or gravelly beaches and shoreline forests in the lowland zone; common in coastal BC; amphiberingian, N to AK, YT and N, E to NF and S to NH, PA, MI, IL and CA; Greenland, E Asia.

DESCRIPTION:

General: Perennial, tufted grass from thick, ascending rhizomes forming large clumps; stems erect, stout, usually finely but copiously hairy or sometimes smooth above, 50-150 cm tall.

Leaves: Sheaths open, smooth; blades tough, very finely minutely rough appressed-hairy on the upper surfaces and smooth underneath, with numerous prominent nerves, flat to in-rolled, 6-15 mm wide; ear-shaped lobes usually developed at some leaf-bases; ligules more or less fringed with fine hairs, scarcely 1 mm long.

Flowers: Inflorescence a stout spike, (10) 15-30 cm long, 1-2 cm wide; spikelets paired, 4- to 6-flowered, unstalked or if occasionally short-stalked then inflorescence slightly compounded, 20-30 (33) mm long; glumes lanceolate, usually soft-hairy but sometimes only sparsely short-hairy, prominently 3- to 6-nerved and flat, at least at the base, usually membranous-margined, long-pointed, mostly nearly equal to the spikelets, 15-25 mm long, awn-tipped; lemmas generally copiously soft-hairy but rarely only sparsely hairy, mostly prominently-nerved, membranous-margined, 10-20 mm long, long-pointed to abruptly slender-tipped, but scarcely awned; anthers 5-9 mm long.

Notes: A hybrid between *Leymus mollis* and *Elymus glaucus*, known only from Ucluelet and Gold River, has been named *Leymus* x *ucluelétensis* (Bowden) Baum (*Elymus* x *uclueletensis* Bowden). A second hybrid, which is infrequent in SW BC, *Leymus* x *vancouverensis* (Vasey) Pilger (*Elymus vancouverensis* Vasey), has been proposed as a hybrid between *Leymus mollis* and *L. triticoides* (Buckl.) Pilger. See Hitchcock *et al.* (1969) for more detailed descriptions of these hybrids.

Leymus triticoides **(Buckl.) Pilger** (*Elymus triticoides* Buckl.)

creeping wildrye

HABITAT/RANGE:

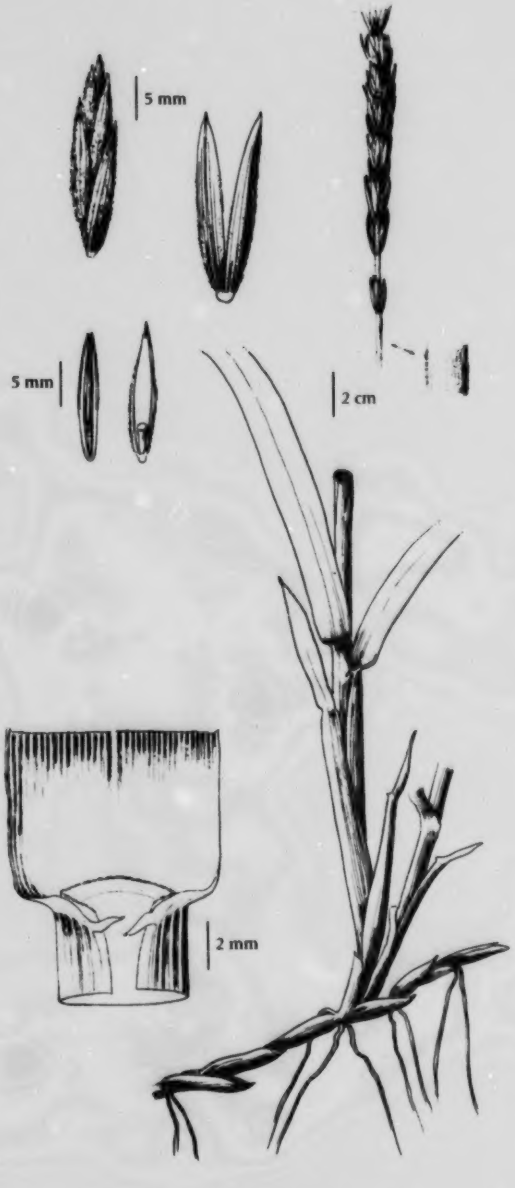
Mesic sand dunes in the lowland zone; rare in SW BC (known only from the Victoria area); S to TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from rhizomes, forming large clumps; stems smooth to short-hairy below the inflorescence, 50-100 (120) cm tall.

Leaves: Sheaths open, smooth to short appressed-hairy, densely short-hairy or long stiff-hairy on younger ones; blades stiff, glaucous, with numerous prominent nerves, usually in-rolled, 3-6 mm wide; ear-shaped lobes at the leaf-bases usually well-developed; ligules jagged and more or less fringed with fine hairs, about 0.5 (rarely up to 2) mm long.

Flowers: Inflorescence an erect, loose and open to rather dense spike, (5) 7-20 cm long; spikelets mostly paired, (3-) 4- to 8- (12-) flowered, unstalked or with one spikelet stalked, the stalks rarely 2-5 mm long and more than one per node, much shorter than the internodes to nearly twice as long as them; rachillas usually obvious; glumes narrow, awl-like, unequal rough or smooth, prominently 1-nerved, often up to 13 mm long, frequently awn-tipped, with secondary, greatly reduced, glumelike bracts on the rachillas; lemmas smooth or sparsely hairy, lightly-nerved, 7-12 mm long, awnless or rarely awn-tipped, the awns then 4-6 mm long; paleas subequal to the lemmas; anthers (3) 4-5 mm long.


5 mm
5 mm
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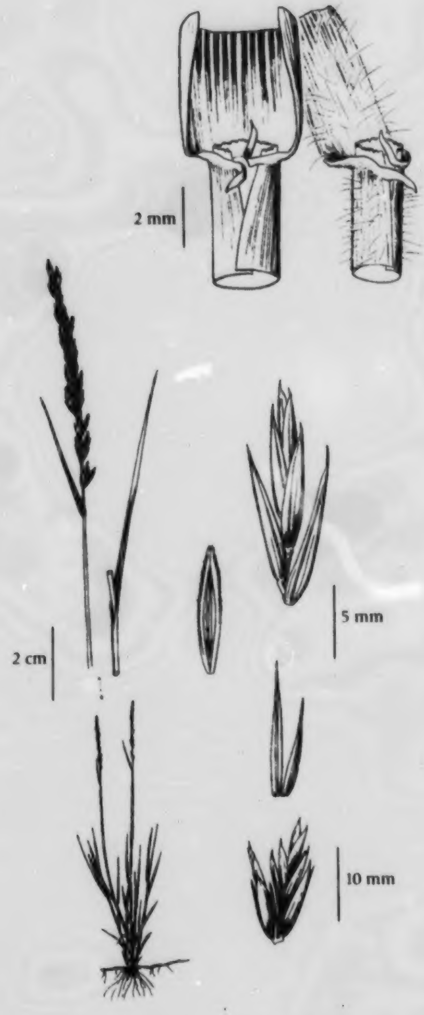
2 mm

Leymus mollis ssp. *mollis*


2 mm
2 cm
5 mm
10 mm

Leymus triticoides

LOLIUM[17]

1. Inflorescence a simple panicle; spikelets stalked, each with 2 glumes (subgenus *Schedonorus).*

   2. Ear-shaped lobes at the leaf-bases with at least some fine hairs along the margins; lemmas usually rough or short bristlelike (at least near the tips), usually with awns 0.3-2 (4) mm long (sometimes unawned) .... *L. arundinaceum*

   2. Ear-shaped lobes at the leaf-bases smooth; lemmas smooth or slightly rough near the tips, unawned or with awns up to 0.2 mm long .... *L. pratense*

1. Inflorescence a spike; spikelets unstalked, all but the terminal ones with 1 glume (subgenus *Lolium).*

   3. Mature florets and fruits 2-3 times longer than wide; glumes usually longer than the spikelets .... *L. temulentum*

   3. Mature florets and fruits usually 3 or more times longer than wide; glumes usually shorter than the spikelets.

      4. Plants lacking vegetative shoots; spikelets 3 to 12 per spike; lower and median florets in the spikelets (5.2) 7-12 mm long, 1.5-2.7 mm wide; lemmas awned; fruits 4.8-7 mm long, 1.2-2 mm wide .... *L. persicum*[18]

      4. Plants usually with some vegetative shoots; spikelets 5 to 38 per spike; lower and median florets in spikelets (3.5) 5-9 mm long, 0.8-2 mm wide; lemmas awned or unawned; fruits 2.5-5.5 mm long, 0.7-1.5 mm wide

         5. Plants short-lived perennials; spikelets with (2) 5 to 9 (10) florets; glumes (1/3) 1/2-3/4 (to slightly exceeding) the length of the spikelets; lemmas usually awnless .... *L. perenne*

         5. Plants annual, or short-lived perennials; spikelets with (10) 11 to 22 florets; glumes 1/4-1/2 as long as the spikelets; lemmas usually awned .... *L. multiflorum*

Lolium arundinaceum **(Schreb.) Darbyshire (*Festuca arundinacea* Schreb.)**

tall fescue

HABITAT/RANGE:

Dry to wet seepages, pastures, fields, meadows, roadsides and disturbed areas in the lowland, steppe and montane zones; infrequent in SW BC, rare eastward in S BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass, sometimes from short rhizomes, otherwise from fibrous roots; stems erect, 90-150 (200) cm tall.

Leaves: Sheaths smooth; blades in-rolled in young shoots, 4-12 mm wide; ear-shaped lobes at the leaf-bases sickle-shaped, slightly wavy or obscure, sparsely fringed with fine hairs on the margins; ligules 0.5-1.5 mm long, membranous.

Flowers: Inflorescence an open or stiffly erect, simple panicle, 10-35 cm long; spikelets 3- to 6- (9-) flowered, stalked, 8-15.5 mm long, each with 2 glumes; lower glumes 3-6 mm long, upper glumes 4.5-7 (9) mm long; lemmas (4) 5-9 (11.5) mm long, rough short-hairy or short bristlelike at least near the tips (rarely smooth), sometimes unawned, or if awned, the awns 0.3-2 (4) mm long, terminal or attached up to 0.4 mm below the tips; anthers 2.5-4 mm long.

Notes: An important crop grown for seed production (primarily in the Peace River District), forage, soil stabilization, and coarse turf, it is increasingly planted in various habitats and becoming broadly adventive.

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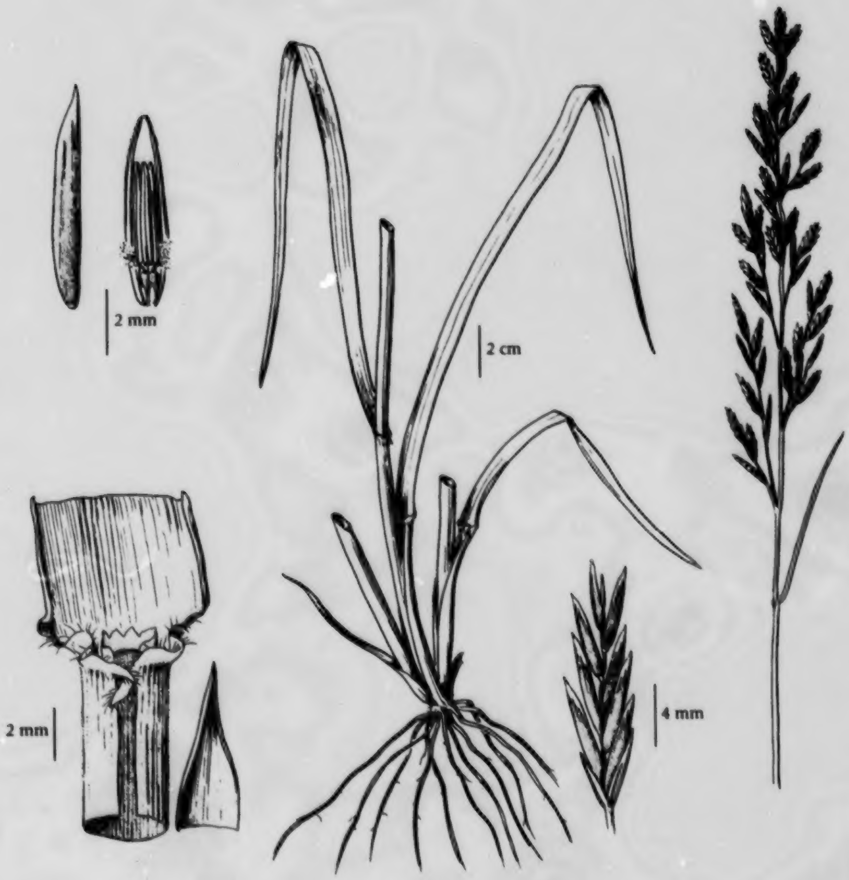
[17] Contributed by S.J. Darbyshire.

[18] This species, although collected several times in the Vancouver area, is not persistent.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Lolium arundinaceum

***Lolium multiflorum* Lam.** (*Lolium perenne* var. *aristatum* Willd., *Lolium perenne* ssp. *multiflorum* [Lam.] Husn.)
Italian ryegrass; annual ryegrass

HABITAT/RANGE:

Mesic to moist pastures, fields, meadows, roadsides and disturbed areas in the lowland, steppe and montane zones; frequent throughout S BC, rare northward; introduced from Eurasia.

DESCRIPTION:

General: Annual, tufted or short-lived perennial grass from fibrous roots, with some vegetative shoots; stems erect, to 150 cm tall.

Leaves: Sheaths smooth; blades flat, in-rolled in young shoots, often rough-hairy on the upper surfaces, (2) 3-8 (13) mm wide; ear-shaped lobes at the leaf-bases sickle-shaped (rarely absent); ligules 0.5-2 mm long, membranous.

Flowers: Inflorescence a spike with 5 to 38, 2-ranked, solitary spikelets, 15-45 cm long; spikelets (10-) 11- to 22-flowered, unstalked, 8-31 mm long, 2-10 mm wide, all but the terminal ones with 1 glume; glumes 5-18 mm long, 1/4-1/2 as long as the spikelets; lemmas 4-8.2 mm long, 1-2 mm wide, the awns to 15 mm long (rarely unawned), attached 0.2-0.7 mm below the tips; anthers (2.5) 3-4.5 (5) mm.

Notes: A commercially important species as a forage crop and as a rapidly germinating and ephemeral nurse crop in companion planting and soil stabilization. Since *Lolium perenne* and *L. multiflorum* are interfertile and intergrade, they are sometimes considered conspecific. Hybrids between the two species are called *Lolium* x *hybridum* Hausskn.

***Lolium perenne* L.**
perennial ryegrass; English ryegrass

HABITAT/RANGE:

Mesic to moist pastures, fields, meadows, roadsides and disturbed areas in the lowland, steppe and montane zones; rare in SW and SC BC; introduced from Eurasia.

DESCRIPTION:

General: Tufted, short-lived perennial grass from rhizomes with some vegetative shoots; stems erect, to 100 cm tall.

Leaves: Sheaths smooth; blades flat, folded in young shoots, usually smooth, (1) 2-4 (6) mm wide; ear-shaped lobes at leaf-bases sickle-shaped (rarely lacking); ligules 0.5-2 mm long.

Flowers: Inflorescence a spike with 5 to 37, 2-ranked, solitary spikelets, 3-30 cm long; spikelets (2-) 5- to 9- (10-) flowered, unstalked, 5-22 mm long, 1-7 mm wide, all but the terminal ones with 1 glume; glumes 3.5-15 mm long, (1/3) 1/2-3/4 (to slightly exceeding) the length of the spikelets; lemmas (3.5) 5-9 mm long, 0.8-2 mm wide, unawned, or if awned, the awns to about 8 mm long, attached about 0.2-0.7 mm below the tips; anthers 2-4.2 mm long.

Notes: A commercially important species as a popular turf grass and stablizer. On a world-wide basis it is perhaps the single most important forage grass. Since *Lolium perenne* and *L. multiflorum* are interfertile and intergrade, they are sometimes considered conspecific. Hybrids between the two species are called *Lolium* x *hybridum* Hausskn.

***Lolium pratense* (Hudson) Darbyshire** (*Festuca pratensis* Hudson)
meadow fescue

HABITAT/RANGE:

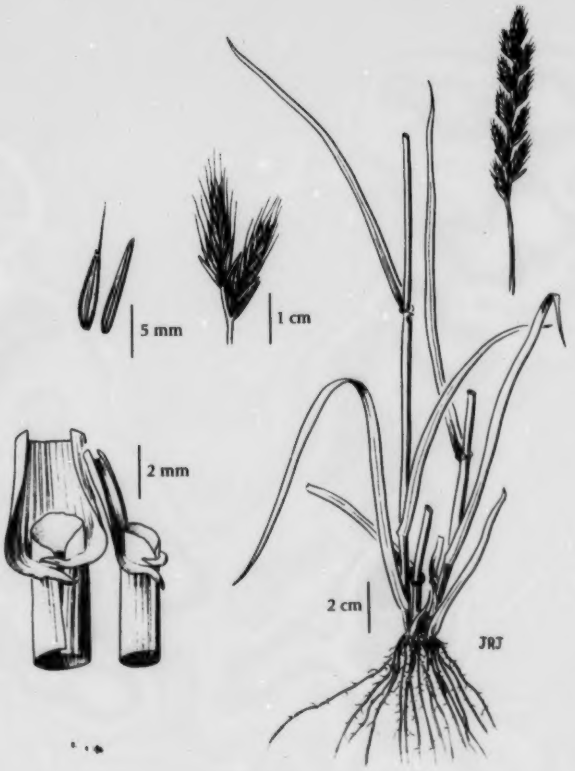
Moist to mesic pastures, fields, meadows, roadsides and disturbed areas in the lowland, steppe and montane zones; infrequent in SC BC; rare in EC and SW BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems erect, to 130 cm tall.

Leaves: Sheaths smooth; blades flat, folded or in-rolled in young shoots, 2-7 mm wide; ear-shaped lobes at the leaf-bases sickle-shaped (sometimes obscure or absent), smooth; ligules 0.2-0.4 (0.5) mm long.

Flowers: Inflorescence an open or contracted, simple panicle, (6) 10-25 cm long; spikelets (2-) 4- to 10- (12-) flowered, stalked, (8.5) 12-15.5 (17) mm long, each with 2 glumes; lower glumes (2) 2.6-4.5 mm long, upper glumes 3-5 mm long; lemmas 5-8 mm long, smooth or slightly rough near the tips, unawned or awned, the awns short, sharp, abrupt points up to 0.2 mm long; anthers (1.5) 2-4.6 mm long.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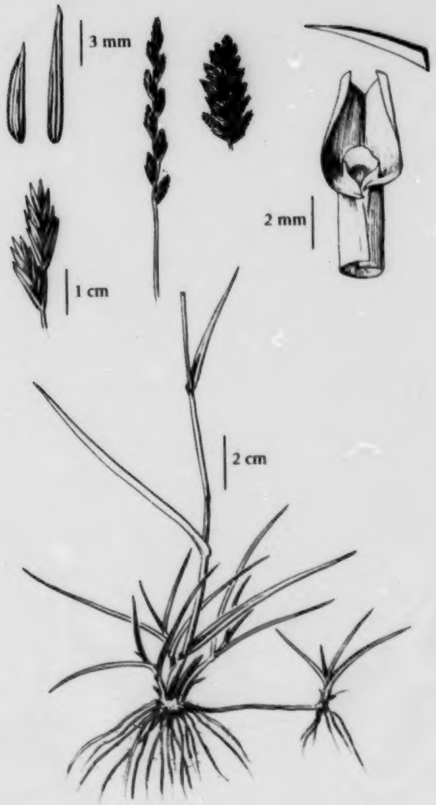
Lolium multiflorum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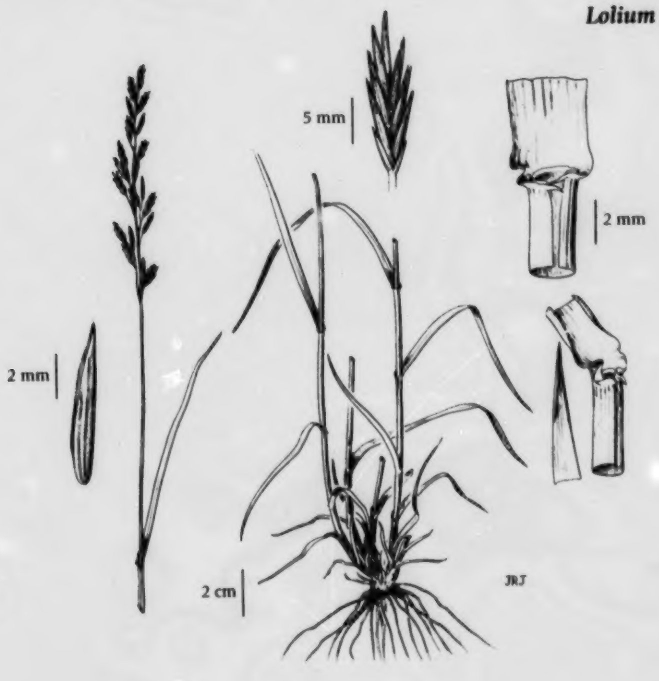
Lolium perenne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Lolium pratense

***Lolium temulentum* L.**

bearded ryegrass; darnel

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland zone; rare in SW BC; introduced from Eurasia and N Africa.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems erect, to 120 cm tall.

Leaves: Sheaths smooth; blades flat, smooth, (1.5) 3-10 (12) mm wide; ear-shaped lobes at leaf-bases sickle-shaped or absent; ligules 0.5-2.5 (3) mm long.

Flowers: Inflorescence a spike with (3) 5 to 26, 2-ranked, solitary spikelets, (2) 5-40 cm long; spikelets 2- to 10-flowered, unstalked, 5-30 mm long, 3-8 mm wide, all but the terminal ones with 1 glume; glumes (5) 7-30 mm long, (1/2) 3/4 to 1 1/2 times as long as the spikelets; lemmas (3.5) 4.5-8.5 mm long, (1.2) 1.5-3 mm wide, unawned, or if awned, up to 17 (23) mm long, attached (0.2) 0.5-2 mm below the tips; anthers 1.5-4 mm long.

MELICA

1. Lemmas awned.
    2. Awns 0.5-3 mm long; panicle branches appressed .... *M. harfordii*
    2. Awns 3-10 mm long; panicle branches widespread, even reflexed .... *M. smithii*
1. Lemmas unawned or awns inconspicuous.
    3. Lemmas strongly tapering and long-pointed, usually hairy over all the nerves .... *M. subulata*
    3. Lemmas pointed or rounded, if hairy on nerves, then only on the marginal nerves.
        4. Lemmas with hairs on the marginal nerves clearly longer than those elsewhere; awns present but inconspicuous .... *M. harfordii*
        4. Lemmas smooth or rough.
            5. Glumes less than 1/2 the length of the spikelets; bulbs not clustered, remaining attached to a section of rhizome .... *M. spectabilis*
            5. Glumes 1/2 to 3/4 the length of the spikelets; bulbs clustered, not remaining attached to a section of rhizome .... *M. bulbosa*

Melica bulbosa* Geyer *ex* Porter & Coult. var. *bulbosa

oniongrass

HABITAT/RANGE:

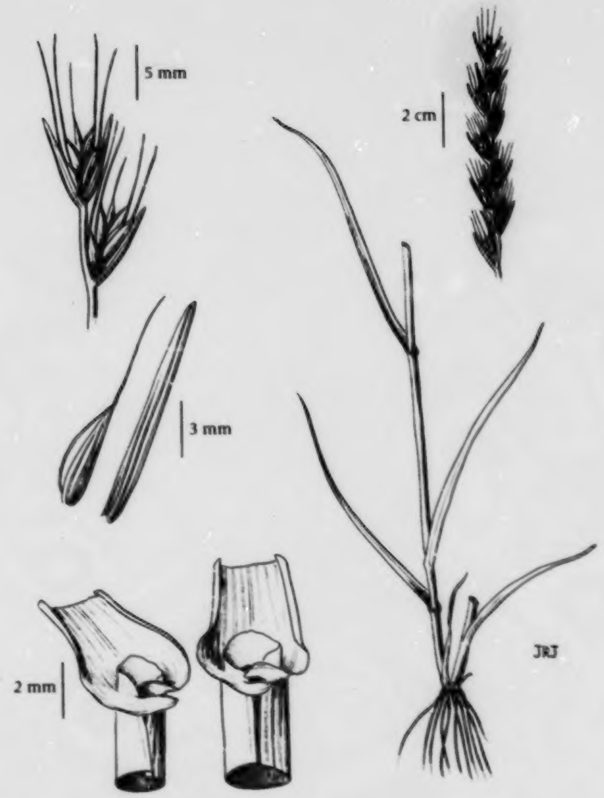
Mesic to dry meadows, grassy slopes or shrublands in the steppe to subalpine zones; rare in S BC in and east of the Coast-Cascade mountains; disjunct E to SK and S to TX, CO, UT, NV and CA.

DESCRIPTION:

General: Perennial, strongly tufted grass from short, thick rhizomes, bulbous-based, the bulbs closely clustered on the rhizomes and not readily separable, not remaining attached; stems erect, 30-100 cm tall.

Leaves: Sheaths usually closed almost their full length, minutely rough to strongly crisp- or spreading-hairy; blades minutely rough- to crisp-hairy, 2-4 (5) mm wide, flat to somewhat in-rolled; ligules usually open in front, jagged, smooth or rarely minutely rough-hairy, (2) 3-4 (6) mm long.

Flowers: Inflorescence a narrow, elongate panicle (7) 10-16 (20) cm long, the branches short, erect, the flower stalks stout; spikelets 3- to 5- (6-) flowered, distant to crowded and overlapping, 10-20 mm long; glumes rather narrow, blunt to nearly sharp-pointed, 1/2-3/4 the length of the spikelets, the lower ones mostly 7-10 mm long, 3 (5)-nerved, the upper ones 9-13 mm long, 5 (7)-nerved; lemmas minutely rough to short-hairy, rather obscurely 7- to 9-nerved, pointed, unawned; anthers (2.5) 3-4 mm long.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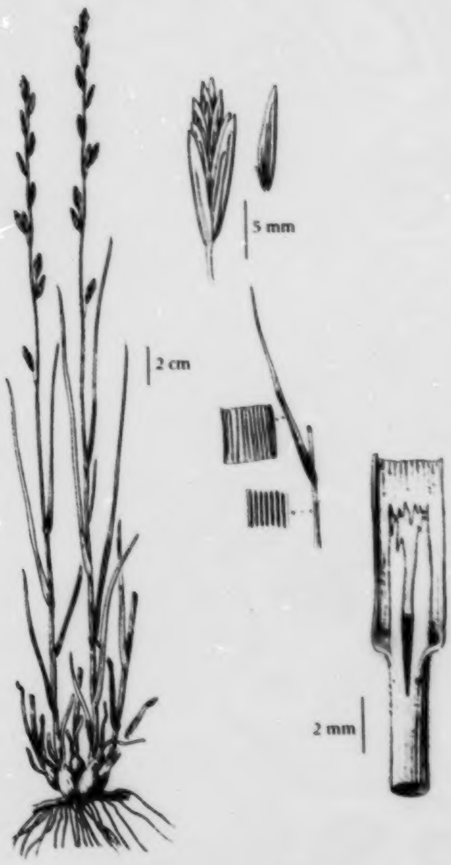
Lolium temulentum



Melica bulbosa var. *bulbosa*

Melica harfordii **Boland.**

Harford's melic

HABITAT/RANGE:

Dry slopes and open forests in the lowland zone; infrequent in SW BC; S to CA.

DESCRIPTION:

General: Perennial, strongly tufted grass from rhizomes, not bulbous-based; stems erect, wiry, sometimes solid, 40-100 (120) cm tall.

Leaves: Sheaths usually closed to the tops, minutely rough to long stiff-hairy; blades rough (and often slightly soft-hairy) on the upper surfaces, usually smooth on the lower surfaces, finely-veined, 1-4 mm wide, flat to in-rolled, the base often short-hairy or somewhat stiff-hairy; ligules usually open in front, more or less fringed with fine hairs to sparsely hairy-fringed (the hairs sometimes as long as the membrane), finely rough-hairy, usually closed and projecting upward in front in broad, rounded to sharp-pointed, triangular teeth, 1-3 mm long.

Flowers: Inflorescence a narrow panicle 10-20 cm long, the branches short, appressed; spikelets closely (2-) 3- to 6-flowered, 10-17 mm long; lower glumes 6-8 mm long, 5-nerved, the upper ones 8-10 mm long, 7-nerved; lemmas strongly fringed with fine hairs on the lower halves, especially along the margins, obscurely 9- to 11-nerved, rounded or with shallow notches at the tips, about 10 mm long, inconspicuously awned, usually with fragile awn tips 0.5-3 mm long; anthers (3) 4 mm long.

Melica smithii **(Porter) Vasey**

Smith's melic

HABITAT/RANGE:

Moist forests in the lowland and montane zones; rare in S and EC BC; E to SW AB and disjunctly to E ON and PQ and S to MI, WI, SD, MT, ID and OR.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, not bulbous-based; stems erect, 60-130 cm tall.

Leaves: Sheaths closed to the tops, smooth to more or less stiff-hairy or generally hairy; blades often minutely rough, the nerves prominent and broadly spaced, 5-10 mm wide, flat, lax; ligules usually closed in front until split, coarsely jagged, blunt to rounded, 3-9 mm long, the collars smooth to short soft-hairy.

Flowers: Inflorescence a panicle 12-30 cm long, the branches solitary, at flowering usually spreading to drooping or reflexed, bearing a few spikelets mostly above midlength; spikelets loosely (3-) 4- to 6-flowered, 10-17 mm long; glumes narrow, the lower ones 5-6 mm long, 3-nerved, but the lateral nerves very indistinct, the upper ones up to 7.5-9 mm long, distinctly 3-nerved, often abruptly sharp-pointed; lemmas finely minutely rough or short-hairy, strongly 7-nerved, bifid at the tips for about 1 mm, awned, the awns 3-10 mm long, borne between the teeth, about 10 mm long; anthers about 3 mm long.

Melica spectabilis **Scribn.**

purple oniongrass

HABITAT/RANGE:

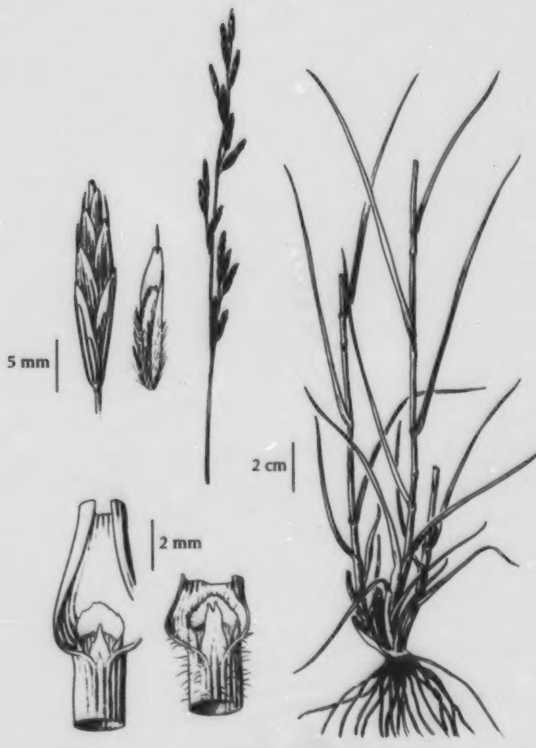
Wet to dry meadows and open forests in the montane and subalpine zones; rare in WC and S BC east of the Coast-Cascade Mountains; E to SW AB and S to CO, UT, NV and N CA.

DESCRIPTION:

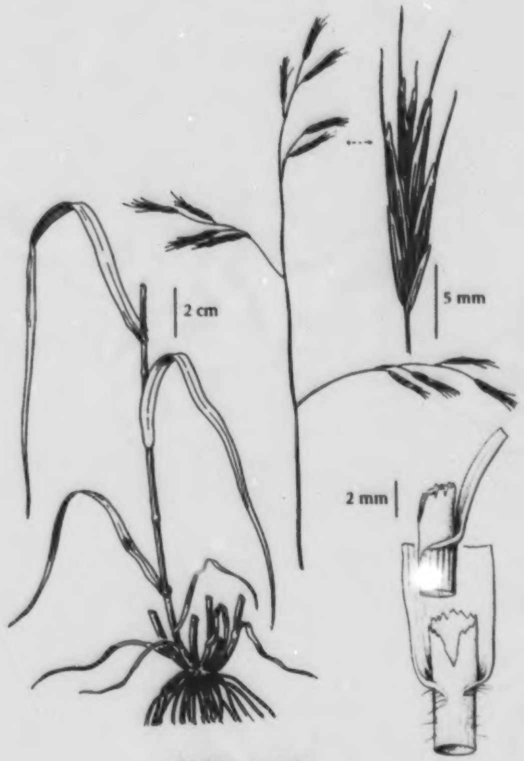
General: Perennial grass from rhizomes, bulbous-based, the bulbs spaced at intervals of 1-3 cm along the rhizomes, remaining attached; stems erect, 30-80 (110) cm tall.

Leaves: Sheaths usually open for 3-10 mm, but occasionally completely closed, minutely rough; blades smooth (or minutely rough-) to crisp-hairy, 2-4 (5) mm wide, flat to slightly in-rolled; ligules collar-like but generally open in front, usually irregular-jagged, blunt to rounded, smooth, 1-3 mm long.

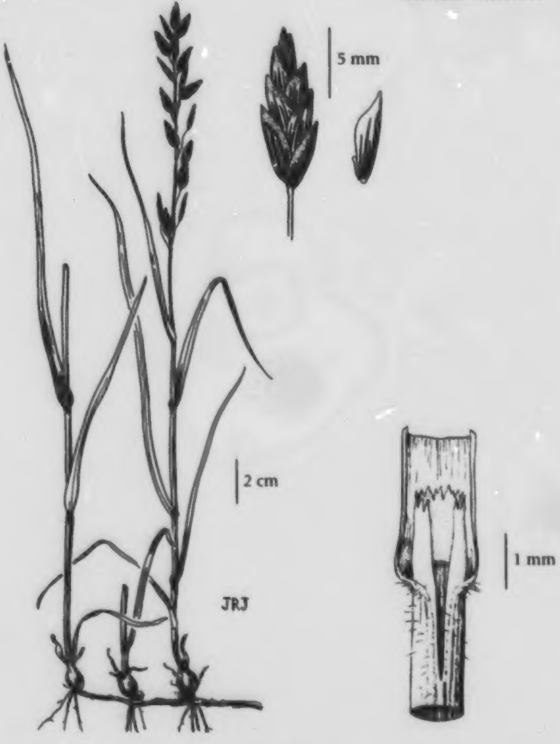
Flowers: Inflorescence a narrow panicle 7-15 (22) cm long, the branches slender, erect; spikelets loosely 3- to 8-flowered, somewhat compressed, 9-15 mm long; glumes less than 1/2 the length of the spikelets, the lower ones about 5 mm long, prominently 3-nerved, but with lateral nerves shorter, obscure, the upper glumes 6-7 mm long, 5 (7)-nerved; lemmas smooth, strongly 7- to 11-nerved, blunt, about (6) 7 (8) mm long, unawned; anthers 2-2.5 mm long.



Melica harfordii



Melica smithii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Melica spectabilis

Melica subulata **(Griseb.) Scribn.**

Alaska oniongrass

HABITAT/RANGE:

Moist to dry meadows and forests in the lowland and montane zones; common on Vancouver Island, frequent on the Queen Charlotte Islands, rare in S BC; N to SE AK, E to SW AB and S to SD, ID, UT and CA; Chile.

DESCRIPTION:

General: Perennial, tufted grass from short, thick rhizomes, bulbous-based, the bulbs clustered; stems erect, 30-80 (110) cm tall.

Leaves: Sheaths closed nearly or quite to the tops, but often split at maturity, sparsely to copiously spreading-hairy to merely minutely rough-hairy; blades minutely rough- to crisp-hairy or sparsely stiff-hairy on the upper surfaces, minutely rough to smooth beneath, 2-7 mm wide, flat; ligules often closed but frequently split, eroded-jagged to somewhat irregular-jagged, smooth, 1-5 mm long.

Flowers: Inflorescence a narrow panicle 10-20 cm long, the few branches ascending to erect, but occasionally spreading; spikelets loosely 2- to 5-flowered, somewhat compressed, 12-20 mm long; glumes abruptly sharp-pointed to long-pointed, the lower ones about 5-6.5 mm long, obscurely 3-nerved, the upper glumes 7.5-9 mm long, lightly (5) 7-nerved; lemmas more or less fringed with fine hairs on the margins and nerves below, obscurely 7-nerved, strongly tapering and long-pointed, 9-13 mm long, unawned; anthers about 1.5 (2) mm long.

MUHLENBERGIA[19]

1. Panicle open with spreading branches at maturity, 2.5-15 cm wide, usually 1/3 to 2/3 the total height of the plant; spikelets on long, slender, hairlike stalks .... *M. asperifolia*

1. Panicle spikelike, compact, less than 2.5 cm wide, usually less than 1/3 the total height of the plant; spikelets nearly unstalked to short-stalked.

    2. Calluses not soft-hairy or bearded (appressed hairs inconspicuous); leaf blades 0.6-1.6 mm wide.

        3. Plants perennials; rhizomes present, scaly and creeping; stems more or less knobby, greater than 1 mm in diameter; anthers generally 0.9-1.6 mm long .... *M. richardsonis*

        3. Plants annuals; rhizomes absent; stems not knobby, less than 1 mm in diameter; anthers generally 0.5-1.2 mm long .... *M. filiformis*

    2. Calluses soft-hairy or bearded; leaf blades 2-7 mm wide.

        4. Hairs at base of lemmas numerous, 2-3.5 mm long; lemmas awned, the awns 4-10 mm long .... *M. andina*

        4. Hairs at base of lemmas sparse, less than 1.5 mm long; lemmas awn-tipped.

            5. Glumes (1.5) 1.8-3.7 (4) mm long, about equal to or less than the length of the lemmas; panicles with slightly spreading branches; anthers 0.3-0.5 mm long .... *M. mexicana*

            5. Glumes (3) 4-7 (8) mm long, 1 1/3 to 2 times longer than the length of the lemmas; panicles contracted with tightly appressed branches; anthers 0.4-1.5 mm long.

                6. Internodes dull, finely short-hairy; lemmas soft-hairy on the margins and at the base; ligules less than 0.6 mm long; anthers 0.8-1.5 mm long .... *M. glomerata*

                6. Internodes smooth and polished except near the tips; lemmas soft-hairy only at the base; ligules 0.6-1.5 mm long; anthers 0.4-0.7 mm long .... *M. racemosa*

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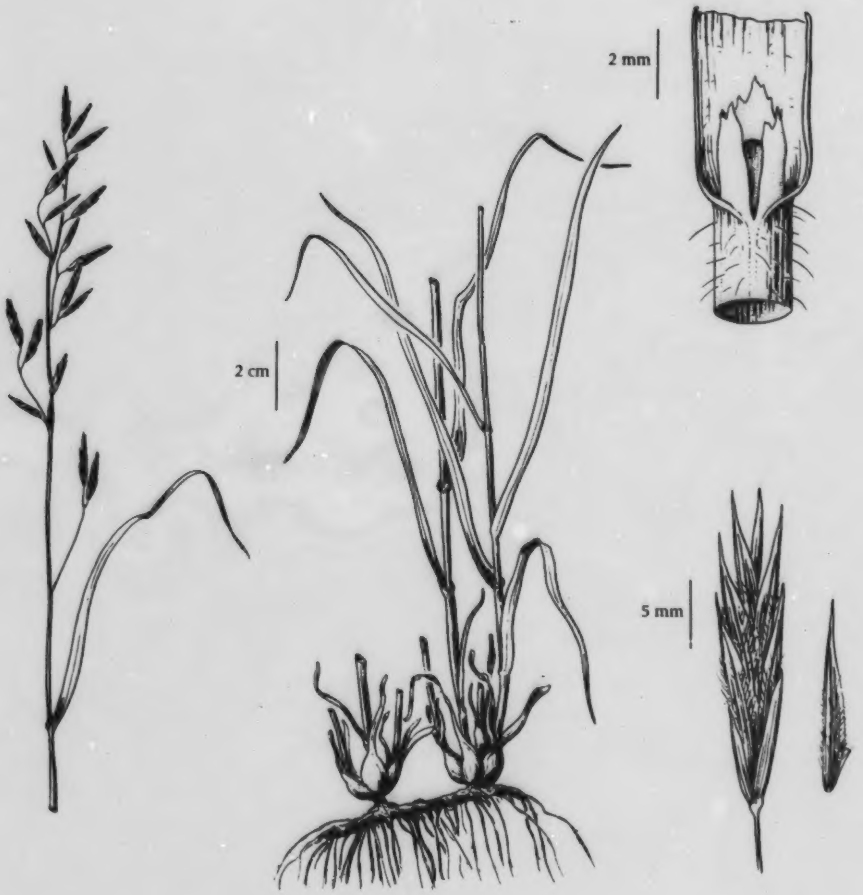
[19] Contributed by P.M. Peterson.



Melica subulata

Muhlenbergia andina **(Nutt.) A.S. Hitchc.**

foxtail muhly

HABITAT/RANGE:

Wet to moist canyons, streambanks, meadows, and hot springs (in tufa) in the montane zone; rare in SE BC, known only from Fairmont Hot Springs; disjunctly E to MB and S to TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from creeping rhizomes; stems hollow, erect, 25-85 cm tall.

Leaves: Sheaths usually minutely rough near the base; blades flat, 2-4 (5) mm wide, 4-16 cm long, rough-hairy below, hairy above; ligules membranous, jagged to fringed with fine hairs, squared-off at the tips, 0.5-1.5 mm long.

Flowers: Inflorescence a narrow, spikelike, compact, densely flowered, interrupted or lobed panicle, 2-15 cm long, 5-24 (28) mm wide, the branches 0.5-5 cm long, appressed, ascending; spikelets 1-flowered, nearly unstalked to short-stalked; glumes very narrow, long-pointed to awn-tipped, 1-nerved, minutely rough on the nerve, usually minutely short-hairy, about equal, 2-4 mm long; lemmas lanceolate, greyish-green, the bodies from slightly shorter to somewhat longer than the glumes (not including the awn tips), 2-3.5 mm long, awned, the awns slender, terminal, (1) 4-10 mm long, the calluses bearded with numerous silky hairs nearly or fully as long as the lemmas; paleas lanceolate, almost equal to the lemmas, with silky hairs between the nerves near the base, the tips long-pointed; anthers 0.4-1.5 mm long, yellow.

Muhlenbergia asperifolia **(Nees & Meyen) Parodi**

alkali muhly; scratchgrass

HABITAT/RANGE:

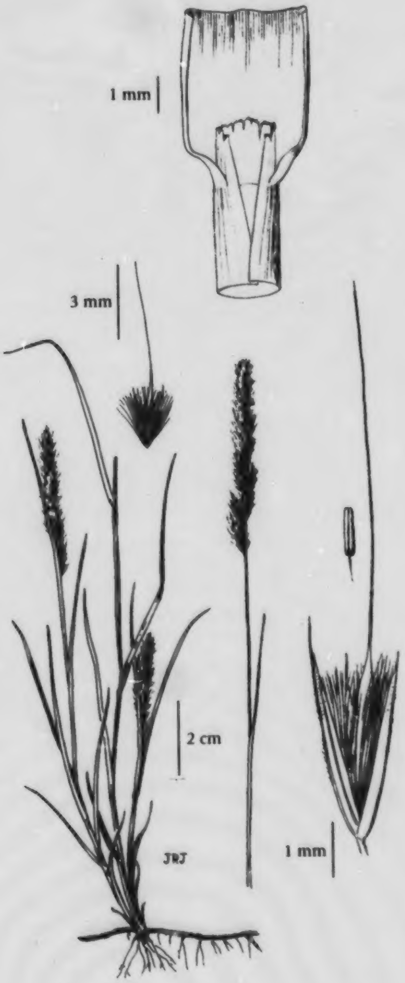
Moist to mesic alkaline meadows, seeps, and hot springs in the steppe and montane zones; infrequent in S BC east of the Coast-Cascade Mountains; E to ON and S to NY, PA, OH, IN, MI, TX, NM, AZ, and CA.

DESCRIPTION:

General: Perennial grass from well-developed rhizomes, occasionally from stolons; stems solid, decumbent to erect, slightly flattened, smooth, 10-60 (100) cm tall.

Leaves: Sheaths smooth, slightly keeled and compressed near the base, strongly over-lapping; blades crowded, flat, occasionally folded, 1-2.8 (4) mm wide, 2-7 (11) cm long, smooth to minutely rough beneath, minutely rough above; ligules firm, fringed with fine hairs, squared-off at the tips, 0.2-1 mm long.

Flowers: Inflorescence an open, broadly egg-shaped panicle, 6-21 cm long, (2.5) 4-15 cm wide, ultimately deciduous, the branches hairlike, 3-12 cm long, ascending, spreading 30-90° from stem axis at maturity; spikelets occasionally 2- or 3-flowered, on long, slender, hairlike stalks; glumes purplish, more or less below, especially along the nerves, 1-nerved, slightly unequal, 0.6-1.7 mm long, the tips sharp-pointed; lemmas lanceolate to oblong-elliptical, somewhat greyish, smooth, occasionally minutely rough near the tips, 1.2-2.1 mm long, somewhat longer than the glumes (up to 1/2 again as long), sharp-pointed, unawned or minutely awn-tipped; paleas lanceolate, smooth, 1.2-2.1 mm long, the tips sharp-pointed; anthers 1-1.3 mm long, greenish-yellow to purplish at maturity.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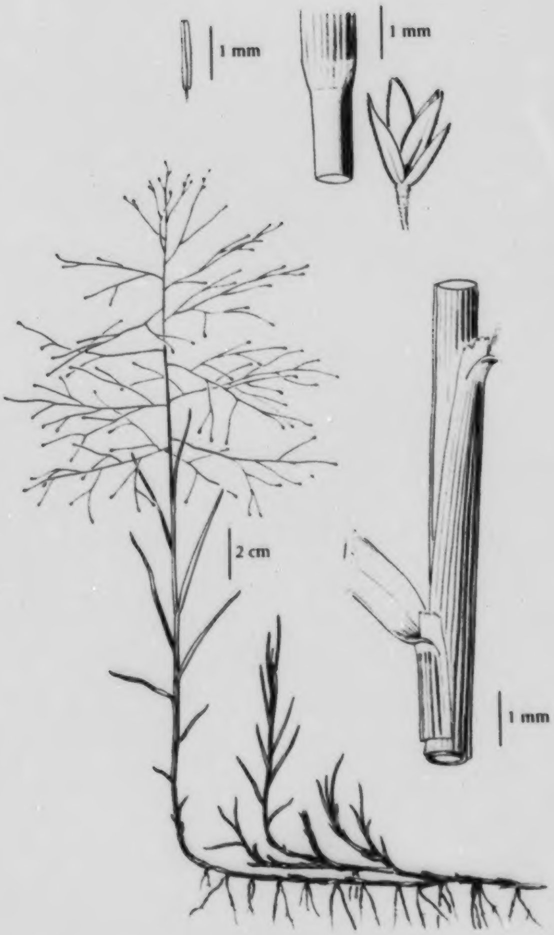
Muhlenbergia andina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Muhlenbergia asperifolia

***Muhlenbergia filiformis* (Thurb.) Rydb.**

slender muhly; pull-up muhly

HABITAT/RANGE:

Wet to moist meadows, seeps, and streambanks in the montane zone; rare in SW BC, known only from Chilliwack Lake and Dewar Hot Springs; E to AB and S to SD, KS, NM, AZ, CA and NW MX.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots, often rooting at the lower nodes, sometimes forming perennial mats; stems solid, erect to abruptly bent, freely branching below, (3) 5-20 (35) cm tall.

Leaves: Sheaths smooth or minutely rough; blades flat or in-rolled, 0.6-1.6 mm wide, 1-4 (6) cm long, rough to hairy above, smooth or minutely rough below; ligules translucent to membranous, blunt to sharp-pointed, 1-3.5 mm long.

Flowers: Inflorescence a very narrow, compact, spikelike, interrupted panicle, 1.6-6 cm long, 2-5 mm wide, few-flowered, the branches ascending, closely appressed, 0.9-1.2 cm long; spikelets 1-flowered, nearly unstalked to short-stalked; glumes greenish-grey, smooth, more or less jagged, 1-nerved, 0.6-1.7 mm long, subequal, blunt, rounded to nearly sharp-pointed, the awn tips about 0.4 mm long, the lower ones 0.6-1.4 mm long, the upper ones 0.7-1.7 mm long; lemmas lanceolate, dark greenish, with appressed, inconspicuous hairs along midnerves and margins on the lower 3/4 or smooth, minutely rough near the tips, (1.5) 1.8-2.5 (3.2) mm long, including the long-pointed to sharp-pointed, less than 1 mm long, awnlike tips, the calluses not bearded; paleas lanceolate, minutely rough near the tips, 1.6-2.6 (3.1) mm long; anthers 0.5-1.2 mm long, purplish.

***Muhlenbergia glomerata* (Willd.) Trin.**

marsh muhly

HABITAT/RANGE:

Wet to moist meadows, streambanks, bogs, irrigation ditches, lake margins, and hot springs in the steppe and montane zones; rare in BC east of the Coast-Cascade Mountains; N to NT, E to NF and S to ME, MA, PA, NC, KY, IL, IA, NE, CO, UT, NV and NE OR.

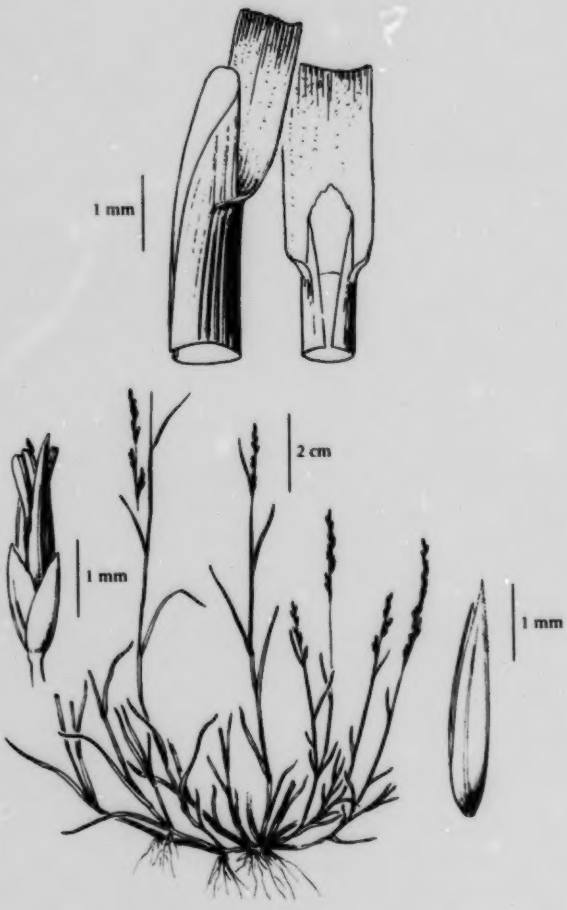
DESCRIPTION:

General: Perennial grass from scaly rhizomes; stems hollow, erect, slightly compressed, unbranched or sparingly branched, the internodes dull, finely short-hairy, 30-120 cm tall.

Leaves: Sheaths minutely rough, slightly keeled, appressed-hairy at base; blades flat, 2-6 mm wide, 2-15 cm long, minutely rough or occasionally smooth; ligules membranous, jagged to more or less fringed with fine hairs, the tips squared-off, 0.2-0.6 mm long.

Flowers: Inflorescence a narrow, condensed, spikelike, densely flowered, somewhat lobed panicle, 1.5-12 cm long, 0.3-1.8 cm wide, the branches tightly appressed, 0.2-2.5 cm long, the spikelets densely clustered; spikelets 1-flowered, nearly unstalked to short-stalked; glumes narrow, awl-pointed, 1-nerved, smooth to minutely rough near the tips, nearly equal, usually 1.3-2 times longer than the lemmas, (3) 4-7 (8) mm long, the tips long-pointed, tapering into short awns up to 5 mm long; lemmas lanceolate, 3-nerved, short soft-hairy along the midnerves, margins and at the base, minutely rough near the tips, 1.9-3.1 mm long, the tips long-pointed, unawned or short awn-tipped, the awns up to 1 mm long, minutely rough, the calluses bearded, the hairs short soft-hairy, about 1 mm long; paleas lanceolate, loosely soft-hairy between nerves, about the same length as the lemmas, the tips long-pointed; anthers about 0.8-1.5 mm long, yellowish.

Notes: This species has been studied cytologically and most populations appear to be diploid (2n=20) whereas two close relatives, *M. mexicana* and *M. racemosa*, are tetraploids (2n=40). Separation of these taxa is often problematic and major differences are emphasized in the key.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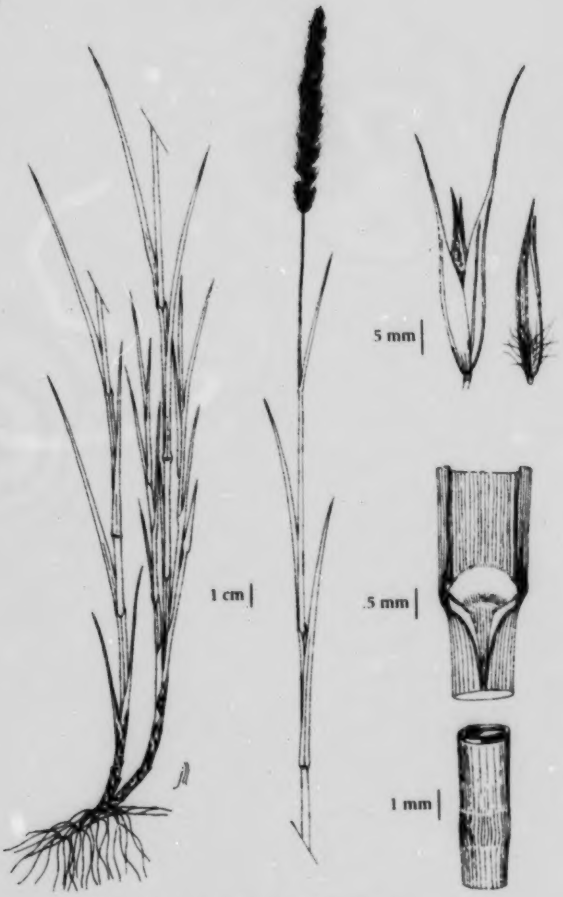
Muhlenbergia filiformis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Muhlenbergia glomerata

Muhlenbergia mexicana **(L.) Trin.**

wirestem muhly

HABITAT/RANGE:

Wet, moist or mesic slopes, road embankments, ditches, lake margins, hot springs, meadows, and waste areas near railroad tracks in the lowland, steppe and montane zones; infrequent in SW and E BC; N to YT, E to NS and NB and S to ME, PA, NC, AL, AR, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from scaly rhizomes; stems hollow, erect, often branched above, minutely rough below the nodes, 30-90 cm tall.

Leaves: Sheaths smooth to minutely rough, sometimes appressed-hairy below the nodes, slightly keeled; blades flat, 2-20 cm long, 2-6 mm wide, smooth to hairy below, the nerves very unequal in prominence; ligules membranous, jagged and more or less fringed with fine hairs, squared-off at the tips, 0.4-1 mm long.

Flowers: Inflorescence a narrow, spikelike, congested, densely flowered panicle, 2-21 cm long, 0.3-2.4 (3) cm wide, the several branches 0.3-5.5 cm long, closely appressed or slightly spreading (up to 30° from stem axis), with secondary panicles often arising from the upper nodes; spikelets densely clustered, 1-flowered, nearly unstalked to short-stalked, often purple-tinged; glumes very narrow, 1-nerved, more or less hairy below on the keels, usually minutely short-hairy, nearly equal, (1.5) 1.8-3.7 (4) mm long, equal or slightly shorter than the lemmas, the tips long-pointed to awn-tipped, when present, the awns up to 2 mm long; lemmas lanceolate, soft-hairy below, minutely rough, short soft-hairy along the midnerves and margins on the lower half, 1.5-3.8 mm long, the tips long-pointed, unawned or awned, the awns up to 10 mm long, the calluses short soft-hairy, the hairs less than 1.5 mm long; paleas narrowly lanceolate, 1.5-3.8 mm long, the tips long-pointed; anthers 0.3-0.5 mm long, yellow to purplish.

Muhlenbergia racemosa **(Michx.) B.S.P.**

satin grass

HABITAT/RANGE:

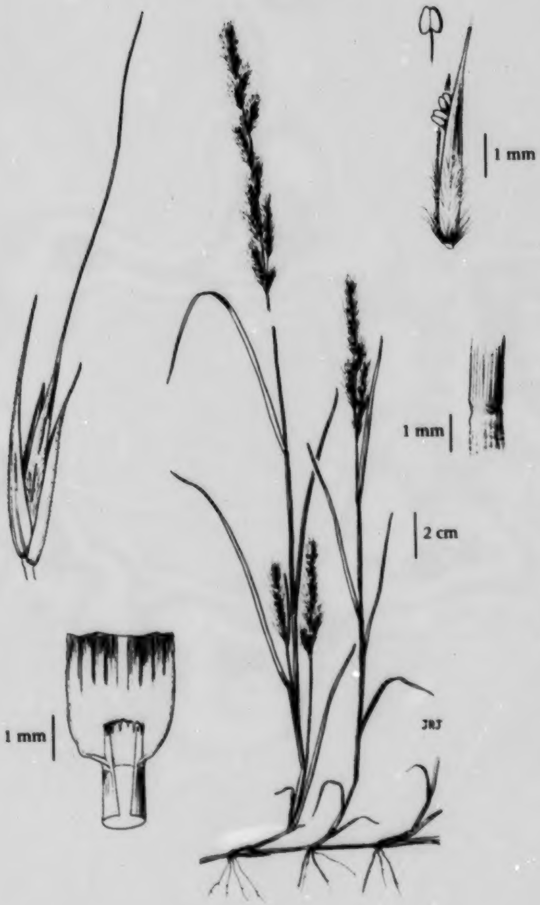
Moist to dry slopes, open forests and rocky areas in the steppe and montane zones; rare in SC BC, known recently only from Spences Bridge; E to PQ and S to ME, VI, IN, IL, MO, TX, NM, AZ and OR.

DESCRIPTION:

General: Perennial grass from scaly rhizomes; stems hollow, erect, nearly circular in cross-section, tapered to slightly flattened, often branching above, more or less short-hairy at and adjacent to the nodes, the internodes smooth and polished except near the tips, 30-110 cm tall.

Leaves: Sheaths minutely rough, slightly keeled; blades flat, rough, minutely rough or occasionally smooth, 2-17 cm long, 2-5 mm wide; ligules membranous, finely jagged and fringed with fine hairs, squared-off at the tips, 0.6-1.5 (1.7) mm long.

Flowers: Inflorescence a narrow, spikelike, contracted, densely flowered, lobed panicle, 0.8-16 cm long, 0.3-1.8 cm wide, the branches 0.2-2.5 cm long, tightly appressed; spikelets 1-flowered, often unstalked or short-stalked, glumes narrow, 1-nerved, smooth to minutely rough near the tips, nearly equal, (3) 4-7 (8) mm long, the tips long-pointed to slender awned, the awns equalling or longer than the bodies, 4-5 mm long, 1.3 to 2 times longer than the lemmas; lemmas lanceolate, soft-hairy in the lower half along midnerves and margins, minutely rough, unawned to awned, 2.2-3.8 mm long including the long-pointed or short-awned tips, the awns up to 1 mm long, the calluses short soft-hairy, the hairs 0.7-1.5 mm long; paleas lanceolate, loosely soft-hairy between nerves on the lower half, the tips long-pointed, 2.2-3.8 (4.5) mm long; anthers 0.4-0.7 mm long, yellowish.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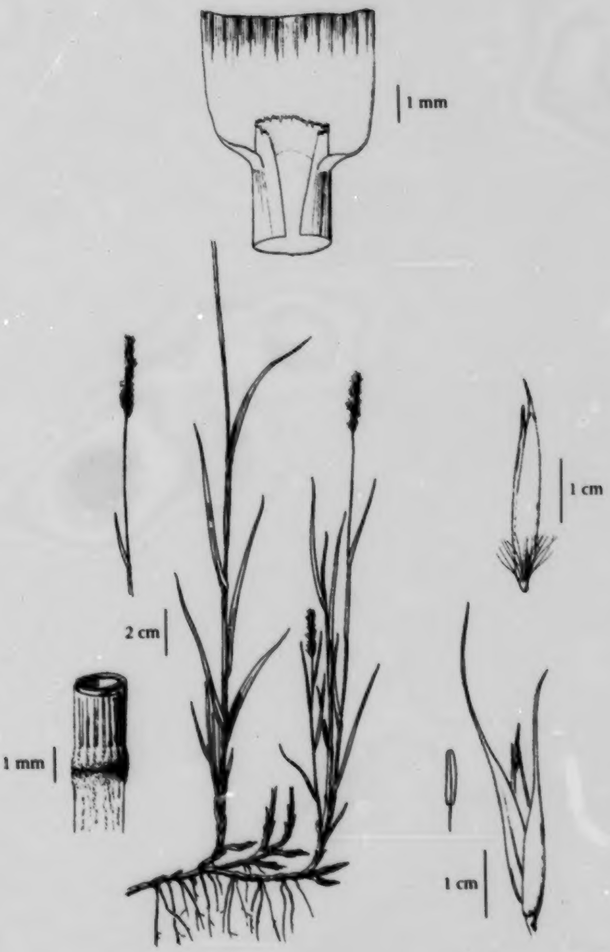
Muhlenbergia mexicana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Muhlenbergia racemosa

Muhlenbergia richardsonis **(Trin.) Rydb.**

mat muhly

HABITAT/RANGE:

Moist to dry, often alkaline meadows, talus slopes, and gravel bars along rivers in the steppe and montane zones; infrequent in BC east of the Coast-Cascade Mountains, except absent on the Queen Charlotte Islands; N to S YT and S NT, E to PQ and NB and S to ME, MI, WI, MN, NE, NM, AZ and CA.

DESCRIPTION:

General: Perennial grass from well-developed, scaly, creeping rhizomes, often matted; stems solid, decumbent or erect, slightly flattened, minutely more or less knobby-roughened, greater than 1 mm wide, 5-30 cm tall.

Leaves: Sheaths smooth; blades flat or in-rolled, straight or curved-spreading, smooth below, more or less stiff-hairy above, 0.4-6.5 cm long, 0.5-4.2 mm wide; ligules membranous, the tips sharp-pointed to squared-off, ragged, 0.8-3 mm long.

Flowers: Inflorescence a narrow, compact, spikelike, loosely flowered, exserted panicle, 1-15 cm long, 0.1-1.7 cm wide, the branches 0.4-5 cm long, appressed, rarely ascending, spreading up to 20° from the stem axis; spikelets 1- or 2-flowered, nearly unstalked or short-stalked; glumes green, more or less rough below, 1- (occasionally 2-) nerved, the midnerves very prominent, nearly equal, 0.6-2 mm long, 1/3-1/2 the length of the lemmas, the tips sharp-pointed, sometimes minutely awn-tipped, the awns less 0.2 mm long; lemmas lanceolate, dark greenish or mottled, smooth, about 1.7-2.6 (3.1) mm long, the tips sharp-pointed to long-pointed, minutely rough, sometimes minutely awn-tipped, the awns up to 0.5 mm long, the calluses not bearded; paleas lanceolate, 1-2.4 (2.9) mm long, the tips sharp-pointed; anthers 0.9-1.6 mm long, yellow to purplish.

NASSELLA

Nassella viridula **(Trin.) Barkw.** (*Stipa viridula* Trin.)

green needlegrass

HABITAT/RANGE:

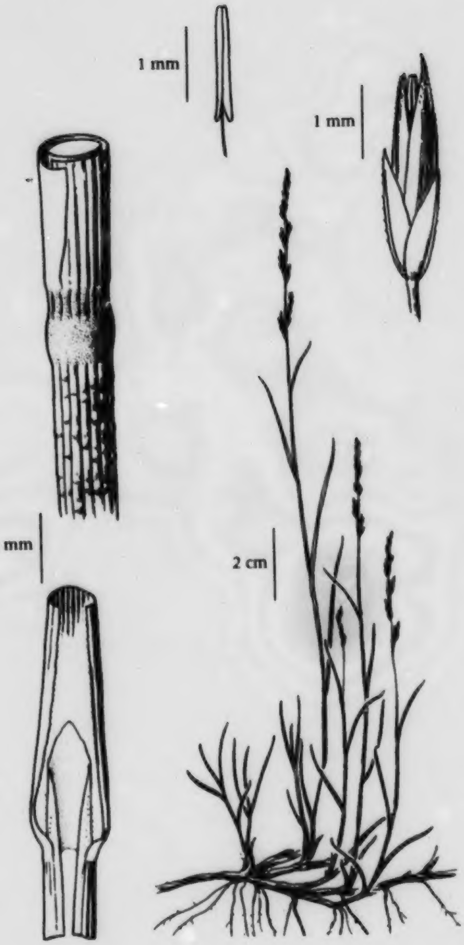
Mesic to dry slopes and open forests in the steppe and montane zones; infrequent in NE, SC and SE BC; N to YT and SW NT, E to MB and S to NY, IL, IA, KS, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems smooth or sometimes more or less hairy, 50-110 cm tall.

Leaves: Sheaths smooth to short-hairy, the margins usually long-hairy, fringed with fine hairs near the tips, the collars usually long-hairy; blades strongly in-rolled, 3-6 mm wide; ligules smooth to hairy on the outside, rounded, the lower ones 0.5-1.5 mm long, the upper sometimes to 3 mm long.

Flowers: Inflorescence a narrow panicle, 10-25 cm long, the branches erect; glumes membranous, abruptly long-pointed, 9-12 mm long, the lower ones often 5-nerved; lemmas hard, stiff, silky-hairy, the terminal hairs usually somewhat longer and coarser, awned, the awns terminal, nearly smooth, twice abruptly bent, (2) 2.5-3.5 cm long, the calluses short, blunt, about 0.5 mm long, hairy; paleas about equal to the lemmas, smooth, translucent, rounded, scarcely 2 mm long; lodicules 2, 1.2-1.5 mm long; anthers often vestigial, scarcely 1 mm long, the fertile ones 2.5-3 mm long.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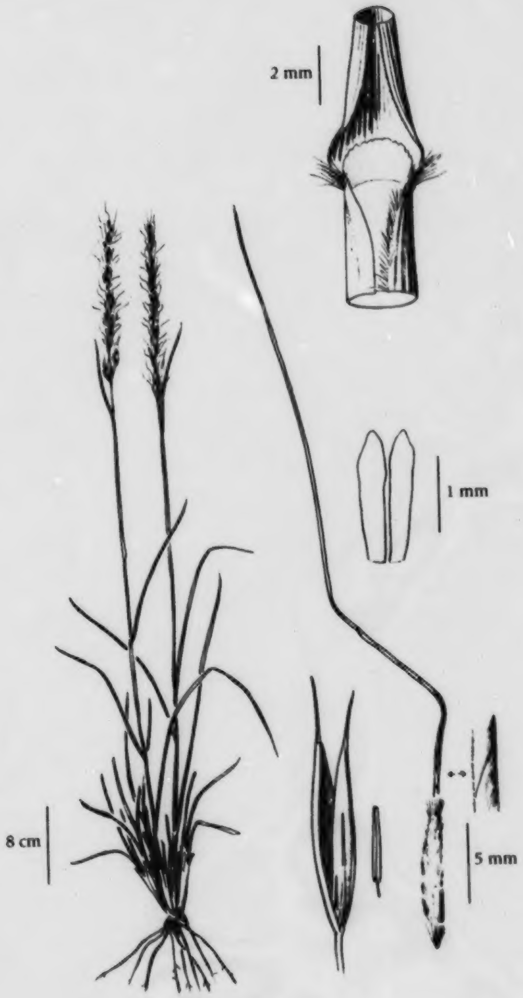
Muhlenbergia richardsonis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1 mm
8 cm
5 mm

Nassella viridula

ORYZOPSIS

Oryzopsis asperifolia **Michx.**

rough-leaved ricegrass

HABITAT/RANGE:

Mesic to dry, gravelly or rocky open forests and forest openings in the montane zone; frequent in BC east of the Coast-Cascade Mountains; N to NW NT, E to NF and S to ME, MA, VI, WV, IN, IA, SD, NM, UT, ID and WA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems hollow, often equalled or exceeded by the erect, stiff blades of the offsets at the stem bases, 20-50 cm tall.

Leaves: Sheaths open; blades of the stems usually greatly reduced or lacking, erect, flat or slightly inrolled, strongly rough, tapering strongly at each end, 3-7 mm wide; ligules more or less fringed with fine hairs, blunt, usually higher on the sides than at the back, about 0.5 mm long.

Flowers: Inflorescence often a nearly simple raceme with all the flowers and branches more or less to one side, 4-8 cm long; glumes broad, about 7 mm long, nearly equal, 7-nerved, the margins more or less jagged, abruptly narrowed to sharp-pointed tips; lemmas appressed-hairy, about equalling the glumes, stoutly awned from the tips, the awns 5-10 mm long, once bent, strongly crisp-hairy on the upper parts of the calluses; paleas about equal to the lemmas; lodicules 2, lanceolate, faintly 2-nerved, about 5 mm long; anthers about 3.5 mm long, the tips tufted with stiff hairs.

PANICUM

1. Lower glumes 0.5-1 mm long, about 1/4 the length of the spikelets, the tips rounded; leaf sheaths smooth .... *P. dichotomiflorum*

1. Lower glumes 1-3 mm long, at least 1/2 the length of the spikelets, the tips sharp-pointed or long-pointed; leaf sheaths hairy.

   2. Panicles erect, spikelets 4.5-6 mm long .... *P. miliaceum*

   2. Panicles spreading to drooping, spikelets 2.5-3.5 mm long .... *P. capillare*

Panicum capillare **L.** (*P. capillare* var. *occidentale* Rydb.)

common witchgrass

HABITAT/RANGE:

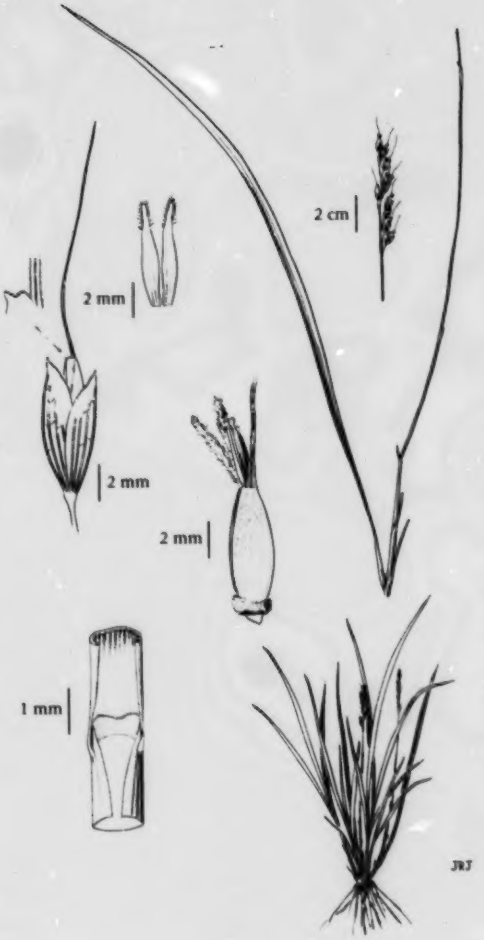
Moist to dry roadsides, railway embankments, gravelly slopes and fields in the lowland, steppe and montane zones; frequent in S BC, rare northward to 56° N; E to PQ and NS and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Annual grass from fibrous roots, usually branching from the base; stems decumbent-based to erect, 20-70 cm tall.

Leaves: Sheaths open, copiously more or less pimpled and soft-hairy, the hairs 2-4 mm long; basal leaves similar to the stem leaves, the blades (3) 5-12 (15) mm wide; ligules 1.5-2 mm long.

Flowers: Inflorescence a diffusely branched, spreading to drooping panicle, 10-30 cm long, often partially included in the uppermost sheath; spikelets 2-flowered, 2.5-3.5 mm long, the lower florets sterile, the upper ones always fertile; lower glumes 3-nerved, sharp-pointed, at least 1/2 as long as the spikelets, 1-3 mm long, the upper ones smooth, 7-nerved, sharp-pointed, about as long as the sterile lemmas, exceeding the fertile lemmas and paleas; sterile lemmas smooth, 9-nerved; fertile lemmas much-hardened, faintly-nerved; lodicules about 0.3 mm long, fan-shaped; anthers purple, about 1.2 mm long.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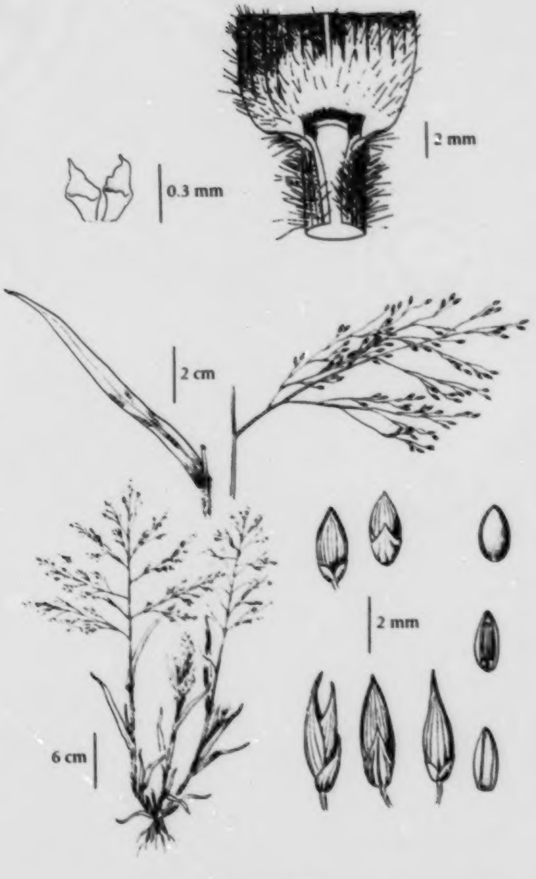
Oryzopsis asperifolia


2 mm
0.3 mm
2 cm
2 mm
6 cm

Panicum capillare

Panicum dichotomiflorum **Michx.**

smooth witchgrass

HABITAT/RANGE:

Moist railway embankments and waste areas in the lowland zone; rare in SW BC (lower Fraser Valley); introduced from E and central N America.

DESCRIPTION:

General: Annual grass from fibrous roots, usually branching from the base; stems decumbent to erect, up to 100 cm tall/long.

Leaves: Sheaths open, usually smooth, but the throats sometimes with a few hairs up to 3 mm long, the collars smooth; basal leaves similar to the stem leaves, the blades somewhat rough but otherwise smooth, 4-12 mm wide; ligules 2-3 mm long, the lower third membranous.

Flowers: Inflorescence a panicle, 15-30 cm long, the branches ascending; spikelets 2-flowered, about 2.5 mm long, the lower florets sterile, the upper ones always fertile; lower glumes egg-shaped, with rounded tips, about 1/4 the length of the spikelets, 0.5-1 mm long, the upper ones smooth, lightly 9-nerved, sharp-pointed; sterile lemmas smooth, lightly 9-nerved, sharp-pointed, with translucent paleas 1-1.5 mm long; fertile lemmas much-hardened and faintly-nerved; lodicules about 0.5 mm long, semi-tubular; anthers about 1.2 mm long.

Panicum miliaceum **L.**

broom-corn millet

HABITAT/RANGE:

Fields, roadsides, shorelines and waste areas; infrequent in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems often somewhat decumbent to erect, up to 100 cm tall.

Leaves: Sheaths open, soft-hairy to stiff-hairy, with many of the hairs minutely blistery, 2-5 mm long; basal leaves similar to the stem leaves, the blades crisp-margined, 7-15 mm wide; ligules about 2 mm long.

Flowers: Inflorescence an erect, branched panicle, 10-30 cm long, the branches rough, erect; spikelets 2-flowered, 4.5-6 mm long, the lower florets sterile, the upper ones always fertile; glumes smooth, strongly-nerved, the lower ones about 7-nerved, long-pointed, at least 1/2 the length of the spikelets, 2-3 mm long, the upper ones 11-nerved, long-pointed; sterile lemmas smooth, strongly 9- to 11-nerved, the paleas membranous, bilobed, about 1.5 mm long; fertile lemmas much-hardened and faintly-nerved; lodicules about 0.5 mm long, semi-tubular.

Notes: Occasionally cultivated in our region and continuously reintroduced from commercial birdseed.

PASCOPYRUM

Pascopyrum smithii **(Rydb.) A. Löve** (*Agropyron smithii* Rydb., *Elymus smithii* [Rydb.] Gould)

western bluegrass; bluestem wheatgrass

HABITAT/RANGE:

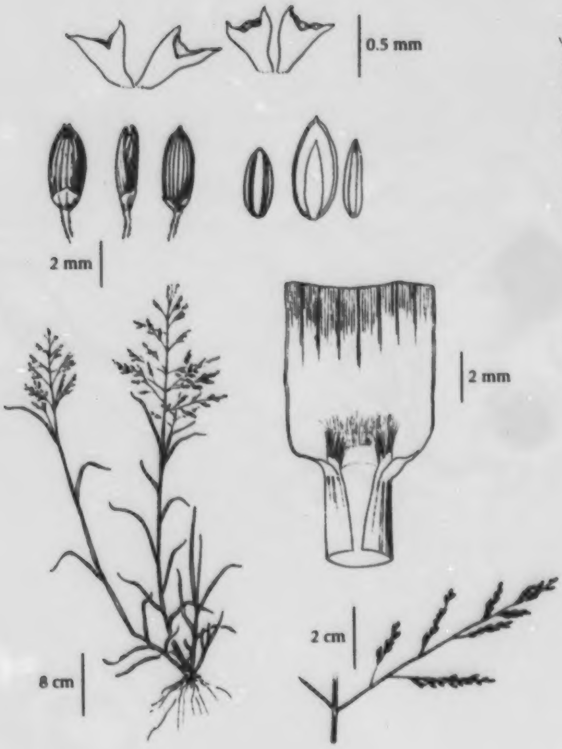
Moist to mesic slopes in the steppe and montane zones; infrequent in BC east of the Coast-Cascade Mountains, locally common in NE BC (Peace River grasslands); E to PQ and S to ME, MA, NY, GA, TN, TX, NM, AZ, NV and OR.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems smooth, 20-100 cm tall.

Leaves: Sheaths smooth; basal leaves in loose tufts, shorter than the stem leaves; blades 1-4.5 mm wide, 2-26 cm long, the leaves decreasing in length upwards, the nerves prominent on the upper surfaces; ligules up to 0.1 mm long, membranous; ear-shaped lobes at the leaf-bases 0.2-1 mm long, clasping the stems.

Flowers: Inflorescence a terminal, 2-ranked spike, 5-17 cm long, 4-10 mm wide, with 1 spikelet per node, occasionally the spikelets paired; spikelets 2- to 12-flowered, 12-26 mm long; glumes lanceolate, unequal, rigid, somewhat curved, 5-15 mm long, 3-5 nerved from midlength or lower; lemmas 6-14 mm long, unawned or with awns 0.5-5 mm long.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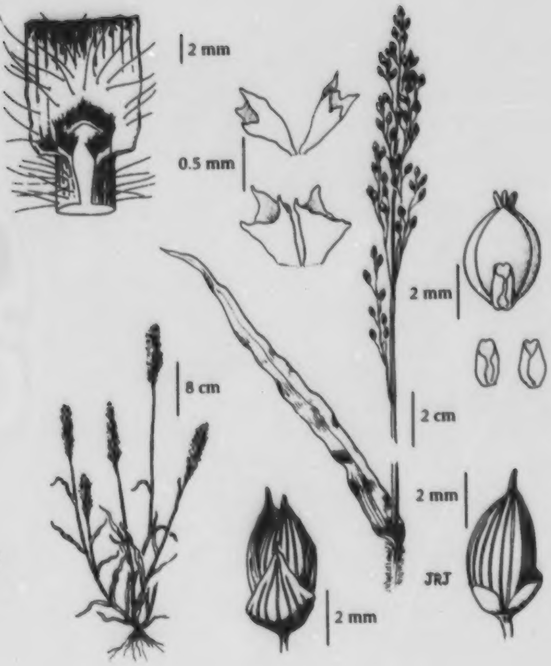
Panicum dichotomiflorum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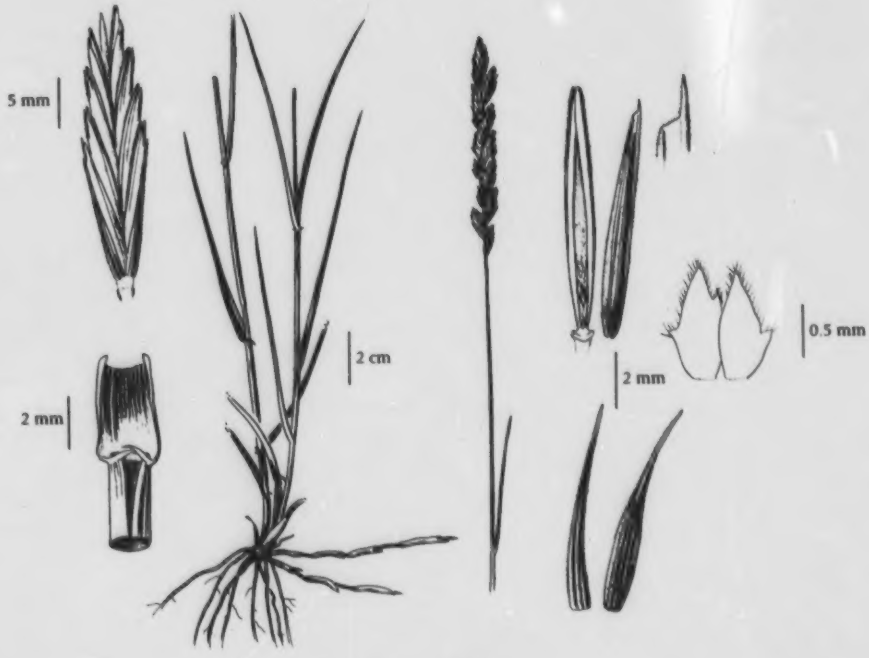
Panicum miliaceum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Pascopyrum smithii

PHALARIS

1. Plants rhizomatous perennials, 50-150 (200) cm tall; inflorescence a compact, erect, branching panicle, the panicles 7-15 (25) cm long .... *P. arundinacea*

1. Plants annuals, 30-60 (100) cm tall; inflorescence a dense, egg-shaped to cylindrical panicle, the panicles 1.5-3 (4) cm long .... *P. canariensis*

Phalaris arundinacea L.

reed canarygrass

HABITAT/RANGE:

Wet meadows, ditches and lakeshores in the lowland and steppe to subalpine zones; common in S BC, rare northward; circumpolar N to AK, YT and NT, E to NF and S to ME, MA, PA, VA, AL, AR, OK, NM, AZ and CA; Eurasia.

DESCRIPTION:

General: Perennial grass from conspicuous rhizomes; stems 50-150 (200) cm tall.

Leaves: Sheaths open; blades flat, 7-17 mm wide; ligules rounded, usually with irregular, jagged margins, turned backwards, short-hairy externally, 4-10 mm long.

Flowers: Inflorescence a compact panicle, 7-15 (25) cm long, the branches more or less spreading at maturity; glumes slightly unequal, minutely rough and short-hairy, 3-nerved, sharp-pointed, 4.5-5 mm long; sterile lemmas hairy, brownish, 1-1.5 mm long; fertile lemmas nearly smooth, lightly 5-nerved, 3-4 mm long; paleas 2-nerved, nearly equal to the lemmas; lodicules lanceolate, about 0.5 mm long; anthers 2.5-3 mm long.

Notes: Sometimes introduced as a pasture grass. The variegated ornamental form (forma *variegata* [Parnell] Druce [var. *picta* L.]) sometimes occurs as a garden escape.

Phalaris canariensis L.

canarygrass

HABITAT/RANGE:

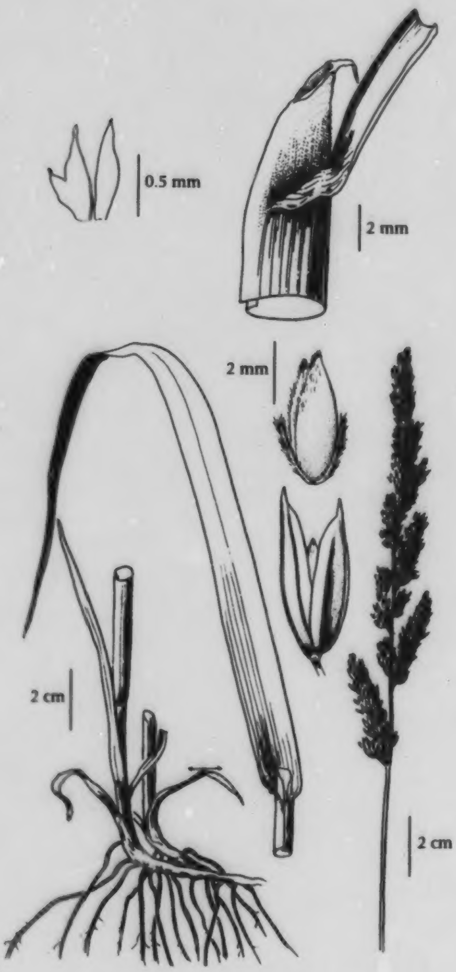
Mesic to dry roadsides and waste areas in the lowland, steppe and montane zones; rare in SW, SC and NE BC; introduced from N Africa and the Canary Islands.

DESCRIPTION:

General: Annual grass from fibrous roots, usually basally-branched; stems 30-60 (100) cm tall.

Leaves: Sheaths open; blades flat, (3) 4-10 mm wide, the margins somewhat unequally freed from the sheaths; ligules blunt to rounded, usually with deeply irregular, jagged margins, smooth externally, 4-8 mm long; ear-shaped lobes at the leaf-bases occasionally present, scarcely 0.3 mm long.

Flowers: Inflorescence a dense, egg-shaped to cylindrical panicle, 1.5-3 (4) cm long; spikelets 6-8 mm long; glumes nearly equal, obliquely egg-shaped, with 3 greenish nerves, abruptly short sharp-pointed, strongly winged on the upper halves, the wings about 1 mm wide; sterile lemmas 2, finely hairy, the lower 2.5-3 mm long, the upper 3-3.5 mm long, both nearly 1 mm wide; fertile lemmas finely hairy, abruptly sharp-pointed, 5-5.5 (6) mm long; paleas nearly equal to the lemmas; lodicules absent; anthers 2.5-3 mm long.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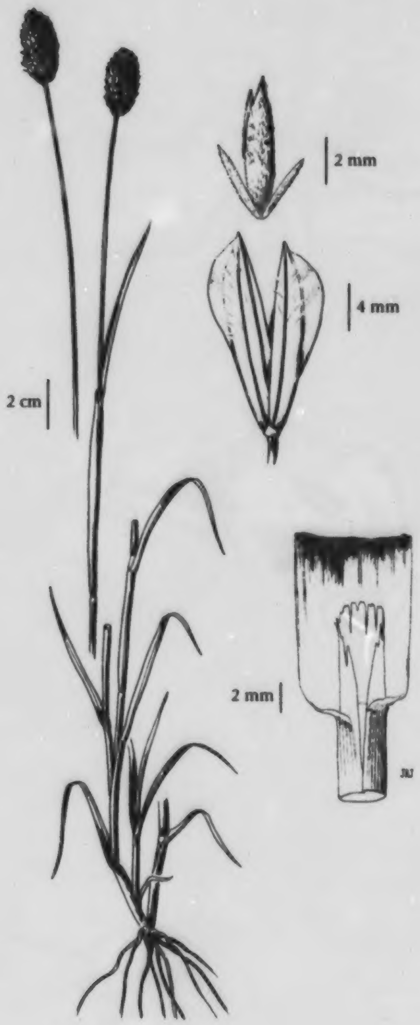
Phalaris arundinacea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Phalaris canariensis

PHLEUM

1. Panicles nearly globe-shaped to short-cylindrical, 1-4.5 cm long; stems tufted or not bulbous at the base; plants native at higher elevations .... *P. alpinum*
1. Panicles slender-cylindric, 4-11 (16) cm long; stems bulbous at the base; plants introduced at lower elevations .... *P. pratense*

Phleum alpinum **L.** (*P. commutatum* Gaudin)

alpine timothy

HABITAT/RANGE:

Moist to mesic meadows and streambanks from the montane to alpine zones; common throughout BC except rare on the Queen Charlotte Islands and Vancouver Island; circumpolar, N to AK, YT and NT, E to NF and S to NH, ME, SD, NM, AZ and CA; Greenland, Iceland, Eurasia, S America.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems often decumbent, and rooting at the nodes, not bulbous at the base, 15-50 cm tall/long.

Leaves: Sheaths smooth; blades flat, 4-7 mm wide, the margins rough; ligules blunt, nearly entire, 1-3 (4) mm long; ear-shaped lobes at the leaf-bases lacking or small and blunt to rounded, more obvious on the upper leaves.

Flowers: Inflorescence a nearly globe-shaped to short-cylindrical panicle, 1-4.5 cm long, often over 1 cm wide when pressed; glumes hairy on the sides, fringed with long, bristlelike hairs on the keels, 3.5-4.5 mm long, abruptly narrowed to the stout awns, the awns 1.5-2.5 (3) mm long; lemmas short-hairy, toothed by the 5 nerves, 2-2.5 mm long; paleas nearly equal to the lemmas; anthers 1-1.4 (1.5) mm long.

Phleum pratense **L.**

common timothy

HABITAT/RANGE:

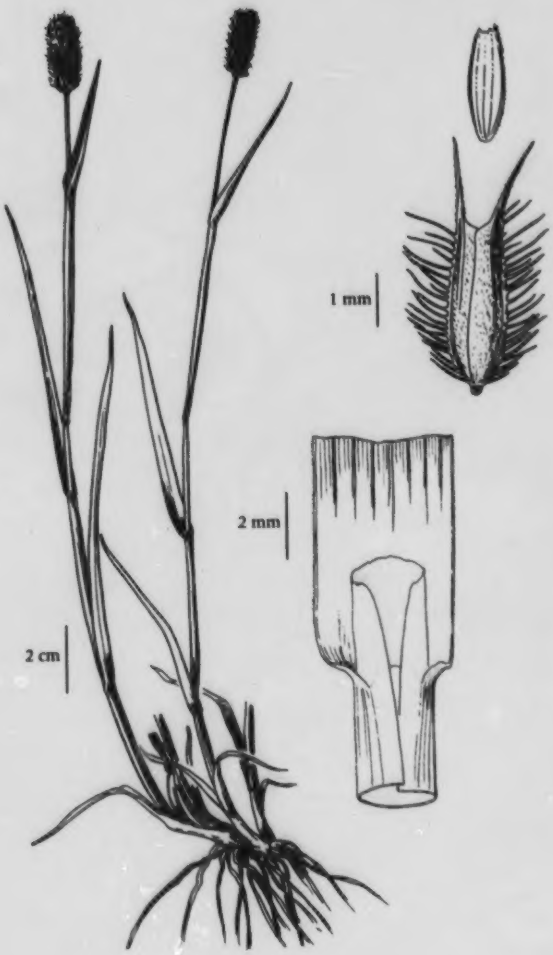
Mesic fields, roadsides, waste areas and disturbed sites; common in S BC, less frequent northward; introduced from Eurasia.

DESCRIPTION:

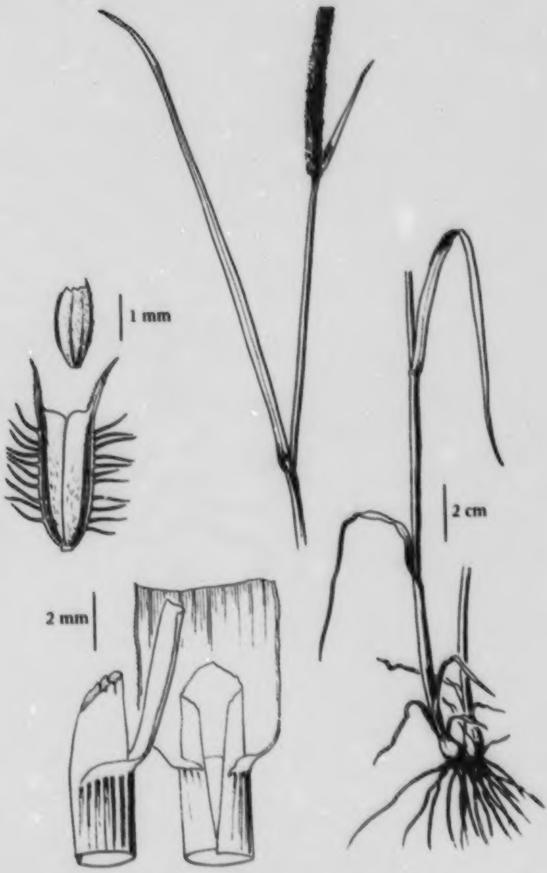
General: Perennial, tufted grass from fibrous roots; stems usually enlarged and more or less bulbous at the base, up to 100 cm tall.

Leaves: Sheaths smooth; blades flat, 4-8 mm wide, the margins rough; ligules blunt, subentire, sometimes the margins irregular-jagged, 2-3 (4) mm long; small ear-shaped lobes at the leaf-bases occasionally present, borne where the blades are freed from the sheaths.

Flowers: Inflorescence a slender-cylindrical panicle, 4-11 (16) cm long, less than 1 cm wide when pressed; glumes usually short-hairy on the sides, strongly fringed with comblike hairs on the keels, 3-4 mm long, abruptly narrowed to the stout, slightly curved awns, the awns 1-1.5 (rarely 2) mm long; lemmas hairy, blunt and jagged, the midnerves slightly extending beyond the tips and bristlelike, scarcely 2 mm long; paleas nearly equal to the lemmas; anthers 1.6-2.3 mm long.



Phleum alpinum



Phleum pratense

PHRAGMITES

Phragmites australis **(Cav.) Trin. *ex* Steud.** **(*P. communis* [L.] Trin.)**
common reed
HABITAT/RANGE:
Marshes, ponds, lakeshores and ditches in the lowland, steppe and montane zones; infrequent in S and NE BC; circumpolar, N to SW NT, E to NF and NS and S to IN, LA, TX and MX; Eurasia, Trinidad, C America.
DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, semi-rhizomatous; stems stout, erect, 200-300 cm tall.

Leaves: Sheaths smooth, loose, twisting in the wind and aligning the blades on one side; blades flat, mostly 20-40 cm long, 10-40 mm wide, usually breaking from the stems by winter; ligules half membrane and half hairs, the innovations mostly membranous, the fringe of hairs late in developing, 1.5-3 mm long.

Flowers: Inflorescence a large feathery panicle, 15-35 cm long, often purplish, but later straw-coloured; spikelets generally 3- to 6-flowered, 10-15 mm long; lower glumes 4-6 mm long, the upper ones about 6-9 mm long; lower lemmas hairy, unawned, 9-12 mm long, the upper ones generally smaller but with awns often as long as the bodies, smooth, but exceeded by the silky hairs of the rachillas; paleas scarcely half as long as the lemmas; lodicules scarcely 1 mm long; anthers about 2 mm long.

PIPTATHERUM

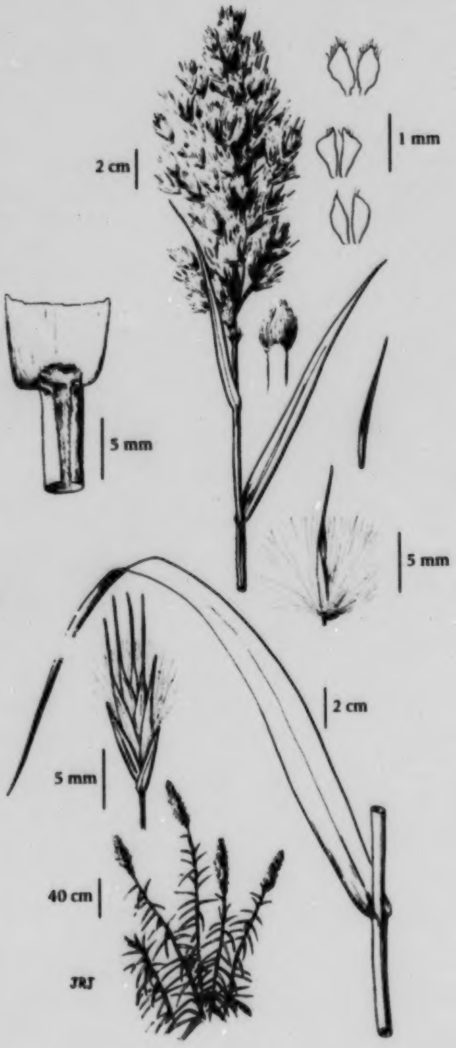
1. Awns 1-2 mm long, readily deciduous, absent from most florets at maturity .... *P. pungens*
1. Awns 4-8 mm long, persistent.
    2. Panicle branches broadly spreading; awns straight but twisted .... *P. micranthum*
    2. Panicle branches appressed to the rachis; awns once abruptly bent .... *P. exiguum*

Piptatherum exiguum **(Thurb.) Barkw.** **(*Oryzopsis exigua* Thurb.)**
little ricegrass
HABITAT/RANGE:
Dry talus slopes, rocky ridges and open forests in the steppe and montane zones; infrequent in S BC; E to AB and S to CO, UT, NV and OR.
DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems hollow, 10-30 (35) cm tall.

Leaves: Sheaths open, smooth to minutely rough; blades of the stem leaves well-developed, erect, strongly in-rolled, scarcely 1 mm wide; ligules short-hairy on the outside, sharp-pointed, (2) 3-4 mm long.

Flowers: Inflorescence a very narrow, raceme-like panicle, 3-6 cm long, the few short branches stiffly erect, appressed; glumes broad, nearly equal, faintly 3- to 5- (7-) nerved, 4-6 mm long; lemmas appressed-hairy, mostly equalling or slightly exceeding the glumes, awned from shortly bidentate tips, the awns stout, twisted, abruptly bent, 4-6 mm long; callus hairs lacking.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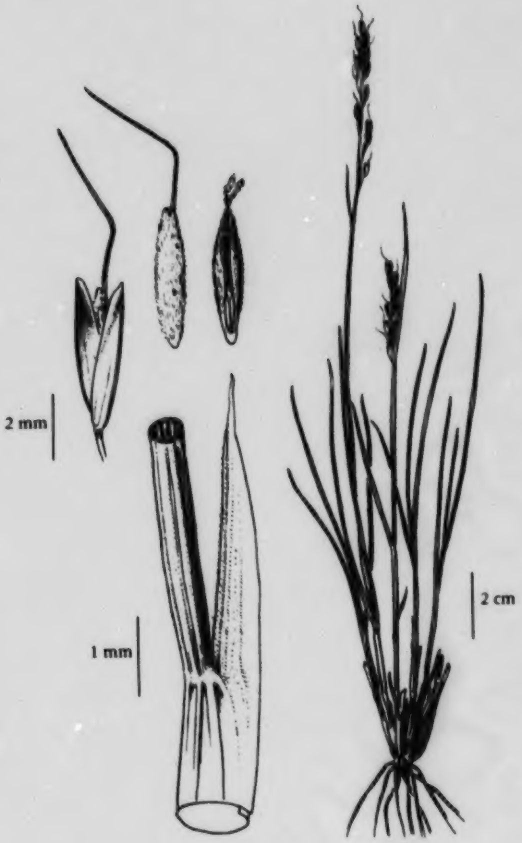
2 cm
5 mm
40 cm
JRJ

Phragmites australis



Piptatherum exiguum

Piptatherum micranthum **(Trin. & Rupr.) Barkw.** (*Oryzopsis micrantha* [Trin. & Rupr.] Thurb.)

small-flowered ricegrass

HABITAT/RANGE:

Mesic to dry, rocky slopes and open forests in the steppe and montane zones; infrequent in SC and SE BC; E to SW MB and S to OK, ND, NM, AZ and NV.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems numerous, hollow, smooth, 30-70 cm tall.

Leaves: Sheaths open, smooth to finely short-hairy; blades of the stem leaves well-developed, flat to somewhat in-rolled, (0.5) 1-2 mm wide; ligules more or less fringed with fine hairs, blunt or higher on the sides than at the back, about 0.5 (1) mm long.

Flowers: Inflorescence a moderately open panicle, 7-15 cm long, the several branches broadly spreading; glumes papery, nearly equal, 5-nerved, long-pointed, 3-3.5 (4) mm long; lemmas smooth (rarely short-hairy), 2-2.5 mm long, awned, the awns firmly attached, straight but twisted, 6-8 mm long; callus hairs lacking.

Piptatherum pungens **(Torr.) Barkw.** (*Oryzopsis pungens* [Torr.] A.S. Hitchc.)

short-awned ricegrass

HABITAT/RANGE:

Dry, rocky or sandy slopes and open forests in the montane zone; infrequent in BC east of the Coast-Cascade Mountains; N to YT and NT, E to NB and NS and S to NJ, NY, IL, IN, SD and CO.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 20-50 cm tall.

Leaves: Sheaths open; blades of the stem leaves well-developed, in-rolled at least when dry, minutely rough, usually less than 1 mm wide, those of the basal innovations elongate, those of the flowering stems much shorter or the upper obsolete; ligules more or less fringed with fine hairs, blunt, 1.5-2.5 mm long.

Flowers: Inflorescence a slender panicle reduced to a nearly simple raceme, egg-shaped and open at flowering, 3-8 cm long, the branches appressed or strongly ascending; glumes very thin, elliptic to egg-shaped, nearly equal, the lateral nerves inconspicuous, 3.5-4 mm long; lemmas about as long as glumes, grey or pale green, awned, the awns readily deciduous, straight or slightly bent, 1-2 mm long; callus hairs lacking.

PLEUROPOGON

Pleuropogon refractus **(A. Gray) Benth.** (*Lophochlaena refracta* A. Gray.)

nodding semaphoregrass

HABITAT/RANGE:

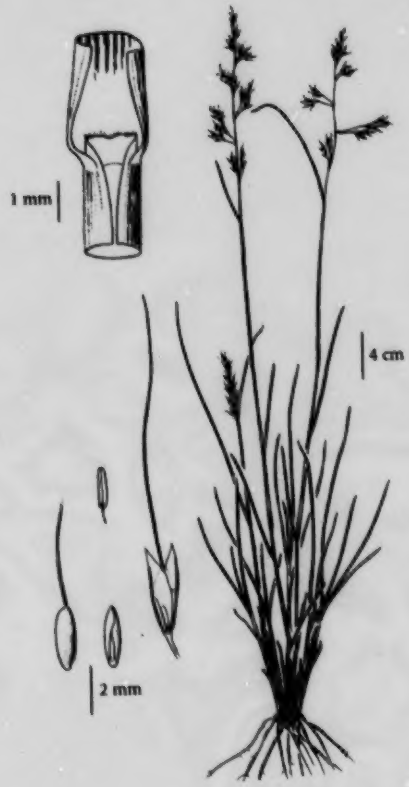
Bogs, streambanks, lakeshores, wet meadows, floodplains, thickets and forest openings in the lowland and montane zones; infrequent on S Vancouver Island and the adjacent lower mainland; S to CA.

DESCRIPTION:

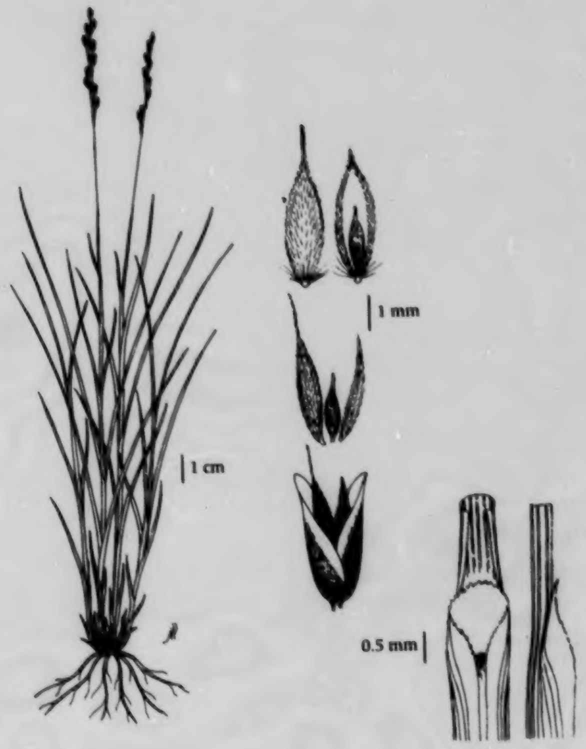
General: Perennial grass in small clusters from rhizomes; stems hollow, erect, 100-150 cm tall.

Leaves: Sheaths closed at the base but open for the upper 2-7 cm; blades flat, 3-7 mm wide, sometimes the uppermost reduced to barely 1 cm long; ligules minutely fringed with fine hairs, 1.5-3.5 mm long.

Flowers: Inflorescence a one-sided raceme, 10-25 cm long; spikelets 5 to 12, broadly spaced, becoming reflexed, loosely 7- to 11-flowered, up to 3 (3.5) cm long; glumes translucent, the lower ones about 4-5 mm long, the upper ones usually somewhat jagged-lobed, 6-7 (8) mm long; lemmas slightly rough, mostly 7-8 mm long, jagged to tri-lobed at the tips, prominently 7-nerved, awned, the awns 3-10 mm long; paleas slightly to considerably shorter than the lemmas, the wings of each keel prominent and free at the tips for 0.5-1 mm, unawned; anthers 3-4 mm long.



Piptatherum micranthum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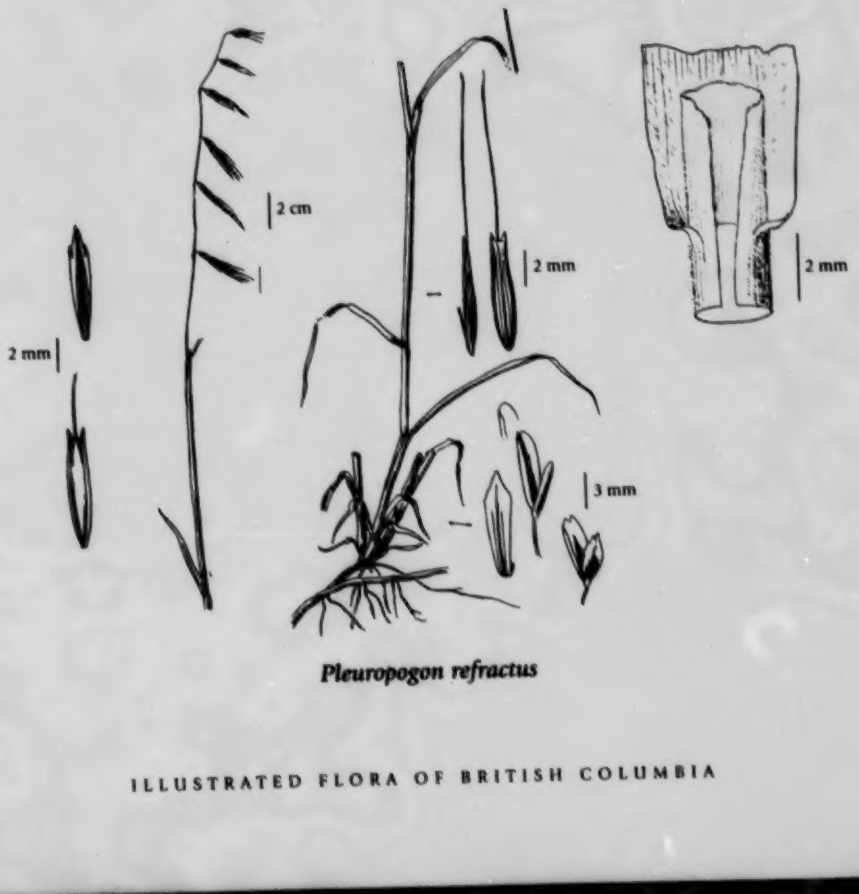
Piptatherum pungens


2 cm
2 mm
2 mm
2 mm
3 mm

Pleuropogon refractus

POA[20]

1. Spikelets producing leafy bulbils in place of normal florets (sometimes with some bulbiferous florets in *P. arctica*).

2. Plants tufted, with bulbous stem-bases; leaf blades soft, soon withering .... *P. bulbosa*

2. Plants rhizomatous, lacking bulbous stem-bases; leaf blades firmer, persistent.

3. Stem leaf blades less than 5 cm long, flat or folded, stiff; panicles erect; plants less than 25 cm tall .... *P. pratensis* (ssp. *colpodea*)

3. Stem leaf blades more than 5 cm long, flat, lax; panicles lax; plants more than 25 cm tall .... *P. laxiflora*

1. Spikelets not producing bulbils.

4. Anthers 0.1-1.2 mm long, not abortive.

5. Panicles contracted; lemmas not webbed; plants subalpine or alpine and mostly less than 10 cm tall.

6. Lemmas hairless (rarely sparsely minutely soft-hairy on the keels), calluses hairless .... *P. lettermanii*

6. Lemmas usually distinctly soft-hairy on the keels (sometimes minutely so) and marginal nerves, rarely hairless, but then calluses webbed .... *P. abbreviata*

5. Panicles generally open; lemmas with or without webs; plants of various habitats and heights.

7. Plants annuals.

8. Panicle branches quite rough; lemmas with or without sparse webs on the calluses, sparsely more or less short-hairy over much of the surface; paleas rough on the upper portion of the keels, some short-haired .... *P. howellii*

8. Panicle branches smooth; lemmas not webbed on the calluses, silky to minutely crisp-hairy or soft-hairy on the nerves and hairless between them, or hairless throughout; paleas silky-hairy on the keels, not at all rough.

9. Anthers minute, 0.5 mm long or less, more or less globe-shaped prior to opening; terminal internodes of rachillas 1/2-3/4 length of terminal lemmas .... *P. infirma*

9. Anthers 0.5-1.1 mm long, cylindrical prior to opening; terminal internodes of rachillas less than 1/2 (3/4) length of terminal lemmas .... *P. annua*

7. Plants perennials.

10. Sheaths of upper stem leaves closed 1/4 or more of their length.

11. Sheaths of the upper stem leaves closed 9/10 their length; lemmas hairless except webbed on the calluses .... *P. marcida*

11. Sheaths of the upper stem leaves closed 1/4-2/3 their length; lemmas at least sparsely silky-hairy on the keels and marginal nerves and webbed on the calluses (except in *P. laxa*).

12. Plants rhizomatous; lower glumes mostly more than 1-nerved.

13. Panicles sparsely flowered, with 1 or 2 branches at the lower nodes; uppermost stem leaf blades mostly as long as or longer than their sheaths .... *P. laxiflora*

13. Panicles close-flowered, with mostly 3 to 5 branches at the lower nodes (1-2 [3] in ssp. *irrigata*); uppermost stem leaf blades much shorter than their sheaths .... *P. pratensis*

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[20] Contributed by R.J. Soreng.

12. Plants tufted; lower glumes mostly 1-nerved (except *P. laxa*).

14. Panicle branches up to 3 cm long, bearing 2 to 6 closely arranged spikelets; lower glumes 3-nerved; lemma calluses without webs .... *P. laxa*

14. Panicle branches usually longer than 3 cm, bearing 1 to several sparsely arranged spikelets; lower glumes 1- to 3-nerved; lemmas distinctly (but sometimes sparsely) webbed.

15. Panicles mostly less than 2.5-10 cm long, the branches smooth or more or less rough, circular in cross-section, tapered; lemmas broadly lanceolate; lower glumes 1- to 3-nerved, broadly lanceolate .... *P. paucispicula*

15. Panicles 5-15 cm long, the branches rough on the angles; lemmas narrowly lanceolate; lower glumes 1-nerved, awl-like .... *P. leptocoma*

10. Sheaths of upper stem leaves closed less than 1/4 their length.

16. Anthers 0.2-0.7 mm long; calluses hairless; delicate plants, to 20 cm tall; panicles open, 2-7 cm long, and nearly as wide; (some plants of *P. laxa* may key here, but have sheaths closed 1/5-1/3 their length [versus 1/10-1/6 their length], panicles that are somewhat contracted, with nearly smooth branches and more closely arranged spikelets, and anthers 0.8-1.1 mm) .... *P. pseudoabbreviata*

16. Anthers 0.8 mm long or longer; calluses hairless or webbed; wiry or coarse plants, to 1 m tall; panicles open or somewhat contracted, 2-35 cm long, distinctly longer than wide.

17. Plants more or less stoloniferous; panicles usually (10) 15-30 (40) cm long; uppermost leaves attached in the middle to upper part of the stem; keels of lemmas tending to arch in the apical part, toward the rachillas; rachillas never soft-hairy .... *P. palustris*

17. Plants uniformly tufted; panicles usually 1-10 cm long; uppermost leaves attached in the lower 1/3 of the stem; keels of lemmas continuing straight into the apex or little arched; rachillas sometimes soft-hairy .... *P. glauca*

4. Anthers 1.2-4.5 mm long, or vestigial (minute white slips) or withered (apparently aborted before maturity).

18. Lower glumes narrowly 1-nerved, more or less sickle-shaped; lemmas short silky-hairy below on the keels, smooth elsewhere; palea nerves smooth or minutely bumpy; short-lived weakly stoloniferous perennials with quite rough branches and lax leaves with long ligules...... *P. trivialis*

18. Lower glumes mostly 3-nerved and rarely sickle-shaped (except in *P. pratensis*); lemmas smooth or hairy but not as above; palea nerves rough to silky-hairy, rarely almost smooth; habits various.

19. Plants rhizomatous or stoloniferous.

20. Stems nodes and internodes decidedly compressed, keeled, several nodes exposed; panicle branches finely and evenly rough on the angles .... *P. compressa*

20. Stems nodes and internodes round in cross-section, nodes exposed or not; panicle branches smooth or rough.

21. Plants with only male flowers or only female flowers, sometimes with both, of sandy coastal habitats; leaf blades in-rolled, all alike in form.

22. Lemmas (6) 7.5-11 mm long; robust plants of shifting sands .... *P. macrantha*

22. Lemmas 2.5-4 (4.5) mm long; slender plants of more stable sandy habitats .... *P. confinis*

21. Plants with both male and female flowers within flowers, or plants not coastal; stem leaf blades flat or folded, upper surfaces smooth, or minutely rough only on the nerves, or rough to more or less stiff-hairy on and between the veins.

23. Sheaths of upper stem leaves closed less than 1/4 their length.

24. Lemmas thin, membranous; callus of the lemmas usually with a crown of 1-2 mm long, slightly wavy hairs around base; robust plants of coastal salt marshes .... *P. eminens*

24. Lemmas firm; calluses of the lemmas sparsely to moderately densely cobwebby; mostly inland plants .... *P. palustris*

23. Sheaths of upper stem leaves closed from over (1/4) 1/3 their length to near the tops.

25. Calluses hairless on all lemmas (rarely with very short dorsal tufts of fine hairs).

26. Sheaths of at least some basal leaves rough, the hairs angled backwards, the collars hairless, rough or with hairs no longer than those of the sheaths; upper stem sheaths closed 1/3-2/3 (4/5) their length; blades of the sterile shoots often in-rolled, usually minutely rough above on and between the nerves; lemmas 3-6 mm long; flowers female; plants from east of the Coast-Cascade Mountains .... *P. wheeleri*

26. Sheaths of the lower stem and lateral shoots hairless or rarely hairy, the collars and throats hairy, the hairs (if any) longer than those of the sheaths; upper stem sheaths closed 2/3 or more their length; blades of the sterile shoots elongate and flat, smooth or sparsely rough on the nerves, but not between the nerves; lemmas 3-4.5 mm long; flowers with all female flowers or with both male and female flowers; plants from west of the Coast-Cascade Mountains .... *P. nervosa*

25. Calluses with distinct single dorsal tufts of long hairs, or a crown of hairs around the base of the lemmas, on at least the lower lemmas within spikelets.

27. Lemmas thin, membranous; calluses with crowns of short straight hairs surrounding the base of the lemmas; robust plants of coastal salt marshes .... *P. eminens*

27. Lemmas firm, not membranous throughout; calluses with single tufts of hairs from the dorsal surfaces; plants of various habitats but not of coastal salt marshes.

28. Paleas silky-hairy most of the length (rarely nearly hairless), between the keels minutely soft-hairy (rarely with only a few minute straight hairs); lemmas long silky-hairy on the keels and marginal nerves and mostly short silky-hairy between them .... *P. arctica*

28. Palea keels rough only or short silky-hairy some of the length, usually hairless between them; lemmas long silky-hairy on the keels and marginal nerves, and infrequently on the intermediate nerves, minutely bumpy between them .... *P. pratensis*

19. Plants more or less densely tufted.

29. Flowers all female, the anthers reduced and more or less non-functional (minute white slips 1 mm long, or sometimes longer in *P. cusickii* ssp. *epilis* but clearly non-functional); sheaths closed over (1/4) 1/3 the length or more; leaf blades of lateral shoots at least, folded to in-rolled and rough to more or less stiff-hairy on and between the veins of the upper surfaces.

30. Lemmas prominently long silky-hairy on at least the keels and marginal nerves; stem blades strongly reduced upwards, the uppermost one often reduced, rigid .... *P. fendleriana*

30. Lemmas hairless (or keel and marginal nerves minutely soft-hairy below in ssp. *purpurascens*); stem blades not reduced upwards, firm or withering, not rigid .... *P. cusickii*

29. Flowers normally with both male and female parts, the anthers mostly 1.2 mm long or longer (sometimes aborted late in the maturation process); upper stem sheaths closed less than 1/4 their length (except in *P. alpina*); leaf blades, if folded or in-rolled, at most rough on the adaxial nerves, smooth between them.

31. Spikelets broadly rounded at the base in side view; stem sheaths closed about 1/4 their length, basal sheaths strongly overlapping and persistent; panicles 2-6 (8) cm long, the branches smooth or very slightly rough (rarely distinctly rough all around); lemmas distinctly silky-hairy; calluses hairless .... *P. alpina*

31. Spikelets narrower, not broadly rounded at the base in side view; upper stem sheaths closed less than 1/4 their length, basal sheaths various; panicles 1-30 cm long, the branches usually rough; lemmas silky-hairy or not; calluses hairless or hairy.

32. Calluses of the lemmas sparsely to moderately densely cobwebby or hairless, appearing laterally pinched in on the backs; palea nerves rough; rachilla internodes mostly less than 1 mm long; all initial shoots of the season flowering; lemmas with distinct golden to bronze-tinged bands near the tips at maturity.

33. Uppermost nodes located in the middle to the upper 1/3 of the stems, one to several nodes exposed; inflorescence stalks shortly exserted; uppermost stem leaf blades approximately equalling or longer than their sheaths.

34. Ligules of stem leaves more than (0.8) 1 mm long; rachillas hairless, with small spines or small, rounded swellings .... *P. palustris*

34. Ligules of stem leaves less than 0.8 (1 mm) long; rachillas hairless or soft-hairy, never with small spines or small, rounded swellings .... *P. nemoralis*

33. Uppermost nodes located in the lower 1/3 of the stems, nodes usually not exposed; inflorescence stalks long-exserted; uppermost stem leaf blades less than 2/3 the length of their sheaths .... *P. glauca*

32. Calluses of the lemmas with crowns of hairs around the base of the lemmas, or hairless, smoothly rounded across the backs; palea nerves silky or soft-hairy in the lower portions, and often between them; rachilla internodes mostly more than 1 mm long; sterile shoots frequent, developing concurrently with the flowering shoots (except in some *P. stenantha*); lemmas white-translucent or slightly bronze-coloured at the tips.

35. Lemmas hairless, or at most minutely soft- to short silky-hairy on the lower nerves, smooth or more or less rough over the bodies; ligules squared-off to obtuse, mostly less than 2 mm long, firm, rough on the backs .... *P. secunda*

35. Lemmas long silky-hairy or soft- to short silky-hairy on the keels and marginal nerves or at least finely short-hairy over the lower halves; ligules of at least the upper stem leaves sharp-pointed to long-pointed, more than 2 mm long (sometimes shorter in dwarf plants), smooth or sparsely rough on the backs.

36. Panicles open at maturity, 5-15 cm long; lemmas distinctly keeled, broadly lanceolate in side view, prominently long silky-hairy on the keels and marginal nerves, and sometimes the midnerves, the internerves hairless or more or less short-hairy; calluses often hairy; leaf blades 1.5-4 mm wide; plants loosely tufted .... *P. stenantha*

36. Panicles open or contracted at maturity, 2-25 cm long; lemmas indistinctly keeled to rounded across the lower backs, narrowly lanceolate in side view, minutely soft- to short silky-hairy on the keels and marginal nerves to more or less evenly short-hairy over the lower halves; callus hairs minute and sparse, or lacking; if the panicles open, then the basal blades mostly less than 1.5 mm wide and soon withering; plants tightly tufted .... *P. secunda*

***Poa abbreviata* R. Br. ssp. *pattersonii* (Vasey) A. Löve, D. Löve & Kapoor** (*P. pattersonii* Vasey, *P. abbreviata* ssp. *jordalii* [A.E. Porsild] Hultén, *P. jordalii* A.E. Porsild)

abbreviated bluegrass

HABITAT/RANGE:

Mesic to moist fellfields and rocky slopes (often on limestone) in the alpine zone; rare in SC and NW BC; amphiberingian, N to AK, YT and NT, E to AB and S to CO, UT, NV and CA; Greenland, E Asia.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 5-15 (20) cm tall.

Leaves: Sheath margins open 3/4-9/10 their length; sterile shoots emerging inside sheaths; basal bladeless leaves absent; blades 0.8-1.5 (2) mm wide, in-rolled, moderately thick; ligules 0.8-5.5 mm long, the tips rounded to sharp-pointed, the backs smooth or rough.

Flowers: Inflorescence an erect panicle, 1.5-5 cm long, lanceolate to egg-shaped, congested, the branches 1 to 3 per node, appressed, slender, to 1.5 cm long, smooth to slightly rough on angles; spikelets laterally compressed, 4-6.5 mm long, 2- to 5-flowered, frequently strongly purplish, longer than stalks; glumes lanceolate to broadly lanceolate, smooth, nearly equalling to slightly longer than adjacent lemmas, the lower 1-nerved; rachilla internodes usually less than 1 mm long, smooth to rough; lemmas broadly lanceolate, 3-4.6 mm long, the tips sharp-pointed, keels (to 3/4 the length) and marginal nerves soft-hairy, hairless or minutely soft-hairy between the nerves; calluses hairless or cobwebby; palea keels rough, medially often minutely soft to short silky-hairy; flowers bisexual (sometimes with bulbils); anthers 0.6-1.2 (1.8) mm long.

Poa alpina* L. ssp. *alpina

alpine bluegrass

HABITAT/RANGE:

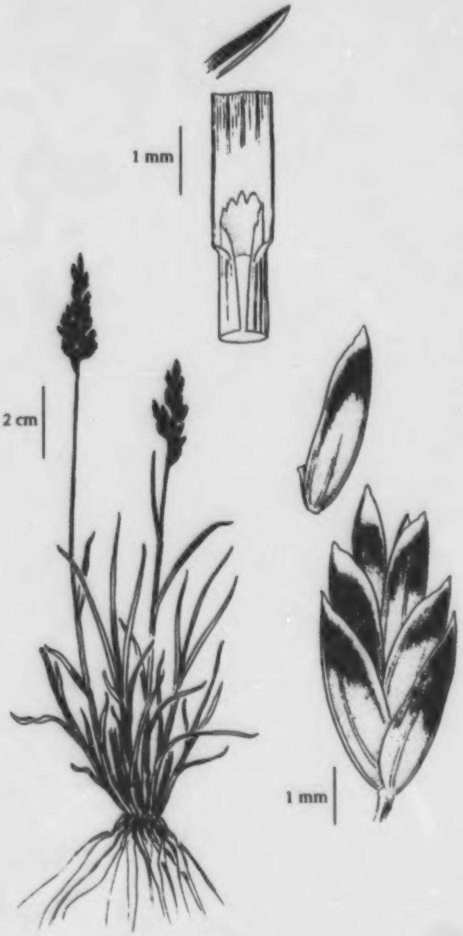
Moist to wet meadows, gravel bars, avalanche tracks and talus slopes in the montane to alpine zones; common throughout BC; circumboreal, N to AK, YT and NT, E to NF and NS, and S to MI, OR, CO, UT and NM; Greenland, Eurasia.

DESCRIPTION:

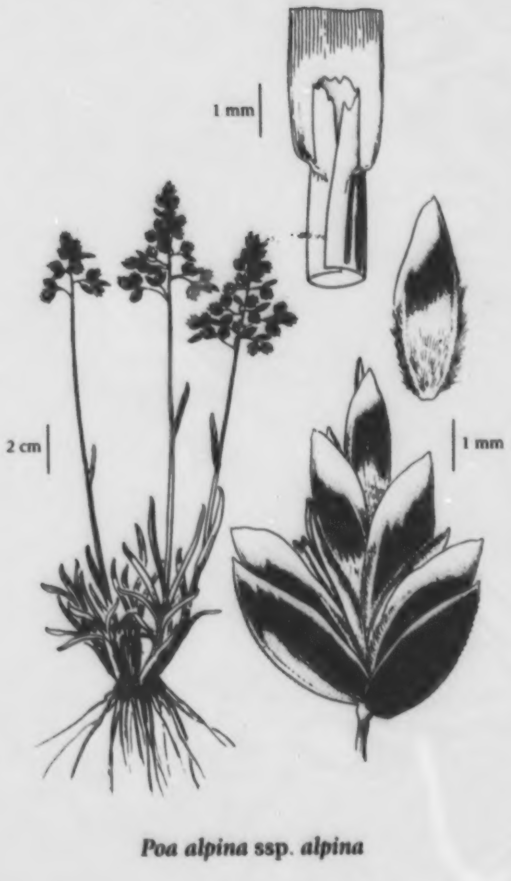
General: Perennial, densely tufted grass from fibrous roots; stems 10-40 cm tall.

Leaves: Mostly basal, not glaucous; sheath margins open about 3/4 their length, basal sheaths persistent, densely overlapping; sterile shoots emerging strictly inside sheaths with distinct two-keeled buds protecting the scales; blades 2-4.5 mm wide, flat, thick, short, basal ones widely spreading, persisting through the season, upper stem ones much reduced in length; ligules rounded at tips, those of the sterile shoot leaves 1-2 (3) mm long, those of upper stem leaves up to 4 (5) mm long, backs smooth, hairless.

Flowers: Inflorescence an erect panicle, 2-6 (8) cm long, egg-shaped to pyramidal, congested, contracted at maturity, terminal internodes 0.6-1 (1.5) cm long, the branches 1 to 2 per node, ascending to spreading, round, smooth or very slightly rough (rarely distinctly rough all around), the stalks widely spreading from the tips; spikelets laterally compressed, broadly lanceolate to egg-shaped, 3.9-6.2 mm long, 3- to 7-flowered; glumes broadly lanceolate, the lower 3-nerved; rachilla internodes less than 1 mm long, smooth, hairless; lemmas broadly lanceolate, 3-5 mm long, the tips sharp-pointed, keels and marginal nerves silky-hairy, sparsely to moderately short silky-hairy between the nerves; calluses hairless; paleas mostly minutely soft- to silky-hairy, the keels rough near the tips; flowers bisexual; anthers 1.3-2.3 mm long.



Poa abbreviata ssp. *pattersonii*



Poa alpina ssp. *alpina*

Poa annua **L.**

annual bluegrass

HABITAT/RANGE:

Dry to moist waste areas, lawns and gardens in the lowland and montane zones; common throughout BC, especially S and W BC; introduced from Eurasia.

DESCRIPTION:

General: Annual tufted grass (rarely longer-lived), from fibrous roots, sometimes from stolons; stems 2-20 (45) cm tall.

Leaves: Sheath margins open about 2/3 their length; sterile shoots emerging inside sheaths with indistinct, two-keeled buds protecting the scales; blades 1-3 mm wide, flat, thin; ligules 0.5-3 mm long, the backs smooth, hairless.

Flowers: Inflorescence an erect panicle, 1-10 cm long, 1.2-1.6 times longer than wide, the branches 1 to 2 (3) per node, ascending to spreading or reflexed; spikelets laterally compressed, 3-5 mm long, 2- to 6-flowered; lower glumes 1-nerved; rachillas smooth, hairless, more or less concealed, terminal internodes less than 1/2 (3/4) length of terminal lemmas; lemmas lanceolate, 2.5-4 mm long, the tips rounded to sharp-pointed, surface smooth, keel, marginal, and often lateral nerves silky- to minutely crisply- or soft-hairy (rarely hairless throughout), lateral nerves moderately prominent; calluses hairless; palea keels silky-hairy; flowers bisexual, or the upper ones in a spikelet female; anthers 0.6-1.1 mm long, cylindrical prior to opening.

Poa arctica **R. Br.** (*P. arctica* ssp. *longiculmis* Hult., *P. longipila* Nash, *P. williamsii* Hult. = ssp. *arctica*; *P. lanata* Scribn. & Merr., *P. malacantha* Kom. = ssp. *lanata*)

arctic bluegrass

HABITAT/RANGE:

Moist to wet meadows, gravel bars and stream sides in the montane to alpine zones; ssp. *arctica* – frequent throughout BC; ssp. *lanata* – locally frequent in NW BC (poorly defined elsewhere); ssp. *arctica* – circumboreal, N to AK, YT and NT, E to NS, S to WA and NM; Iceland, Eurasia; ssp. *lanata* – amphiberingian, N to AK, YT and NT; E Asia.

DESCRIPTION:

General: Perennial, densely to loosely tufted grass from fibrous roots and rhizomes; stems usually decumbent, 7.5-60 cm tall/long.

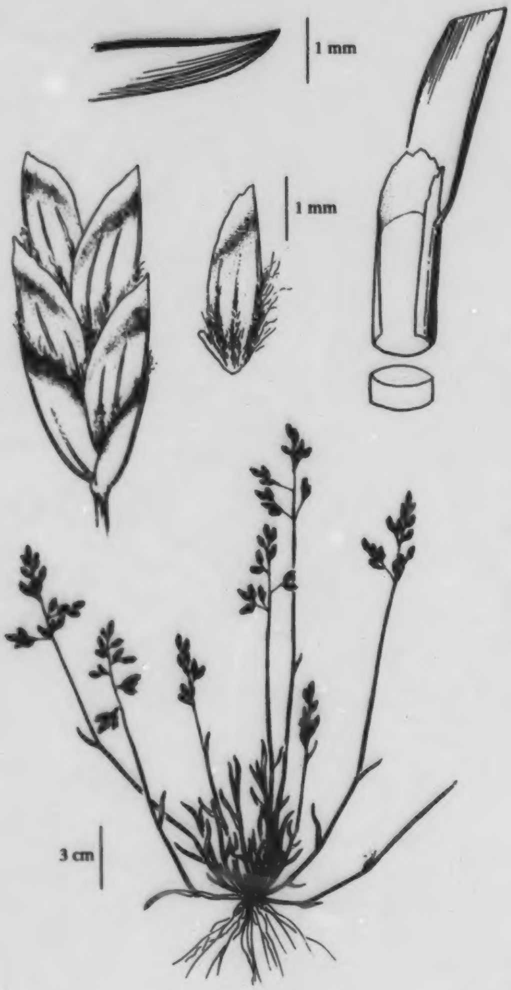
Leaves: Sheaths hairless, margins open 1/2-3/4 their length; sterile shoots mainly breaking through the sheath bases; basal bladeless leaves present; blades 1-4 mm wide, flat or folded; ligules (1) 2-7 mm long, the tips blunt or rounded to sharp-pointed, entire or torn, backs smooth or slightly rough.

Flowers: Inflorescence a lax to erect panicle, (2) 3.5-15 cm long, sparse, egg-shaped to broadly pyramidal, usually open; lowermost internodes less than 1.5 (3) cm long, the branches 1 to 5 per node, ascending or widely spreading, round, smooth or slightly to moderately rough, spikelets not crowded, longest lowermost branches 2/5-3/5 the length of the panicle; spikelets laterally compressed, 4-8 mm long, (2-) 3- to 6-flowered, sometimes with bulbils; glumes lanceolate to broadly lanceolate, keels indistinct, smooth or slightly rough near the tips, the lower ones 3-nerved, the upper usually nearly equalling to slightly exceeding the lower lemmas; rachillas smooth, hairless or sparsely minutely soft to long silky-hairy; lemmas lanceolate to broadly lanceolate, 3.5-7 mm long, the tips sharp-pointed, margins broadly translucent, surface smooth, keel and marginal nerves long silky-hairy, lateral nerves silky-hairy, mostly short silky-hairy between the nerves, lateral nerves prominent; calluses sparsely to copiously hairy; palea keels silky-hairy most of the length (rarely nearly hairless), minutely soft-hairy (or with at least a few, minute, straight hairs) between the keels; flowers bisexual (some appearing female due to aborted anthers); anthers sometimes aborted late in development or if present, 1.4-2.5 mm long.

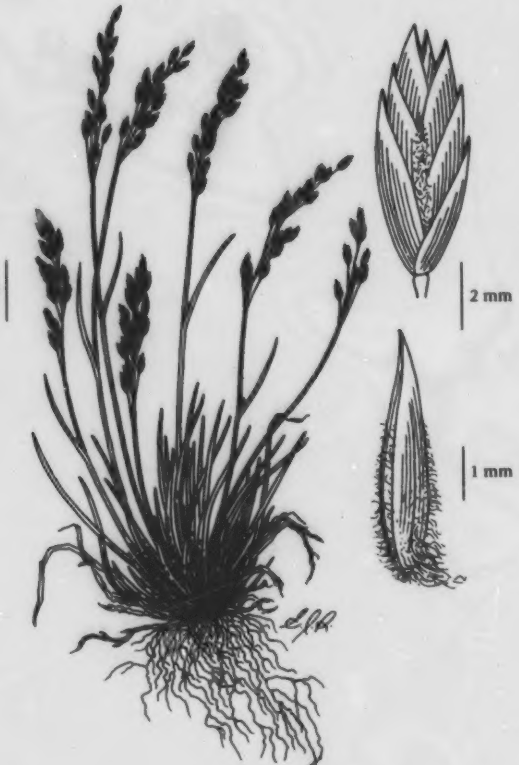
Notes: Two subspecies occur in BC:

1. Spikelets mostly greater than 6 mm long; lower lemmas 4.5-6 mm long; stem leaf blades often flat and more than 2 mm wide .... ssp. *lanata* (Scribner & Merr.) Soreng

1. Spikelets less than 6 mm long; lower lemmas 3-4.5 mm long; stem leaf blades mostly folded and less than 2 mm wide .... ssp. *arctica*



Poa annua



Poa arctica ssp. *arctica*

***Poa bulbosa* L. ssp. *vivipara* (Koel.) Arcang.**

bulbous bluegrass

HABITAT/RANGE:

Dry to mesic grassy meadows and waste areas in the lowland, steppe and montane zones; frequent in SW and SC BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial grass from fibrous roots; stems erect or spreading, 15-60 cm tall.

Leaves: Sheath margins open about 3/4 their length; sterile shoots bulbous at the base, emerging inside sheaths with distinct two-keeled buds protecting the scales; basal bladeless leaves absent; blades 1-2.5 mm wide, flat, lax, thin; ligules 1-3 mm long, the tips rounded to sharp-pointed, the backs smooth or rough.

Flowers: Inflorescence a panicle, 3-12 cm long, egg-shaped, the branches 2 to 5 per node, ascending to spreading, round, smooth, or slightly rough; spikelets laterally compressed, 3-5 mm long, 3- to 7-flowered, all florets with bulbils, or the lower most lemmas of the lowermost spikelets more or less normal; glume keels rough, the lower ones 3-nerved; rachillas smooth, hairless; lemmas of bulbiferous florets leaflike, surface hairless or keel and lateral nerves and some internerves minutely soft-hairy, those of normal florets 3-4 mm long, the tips sharp-pointed, surface nearly hairless or hairy; calluses of the few normal or semi-normal lemmas usually cobwebby; anthers in semi-normal florets aborted late in development.

***Poa compressa* L.**

Canada bluegrass

HABITAT/RANGE:

Dry to moist areas, roadsides and meadows in the lowland and montane zones; infrequent in S BC; introduced from Eurasia or possibly native, occurring throughout US and S Canada, N to AK.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots and rhizomes; stems often decumbent, 15-60 cm tall/long with stems and nodes distinctly compressed, some lowermost nodes exserted from sheaths of stem leaves.

Leaves: Sheaths distinctly compressed, margins open 4/5-9/10 their length; blades 1.5-4 mm wide, flat; ligules 1-3 mm long, the tips rounded, margins rough, the backs rough.

Flowers: Inflorescence an erect panicle, 2-10 cm long, lanceolate to egg-shaped, sparse to congested, often interrupted, the branches mostly 1 to 3 per node, eventually spreading, less than 3 cm long, distinctly rough on the angles; spikelets laterally compressed, 3.5-7 mm long, 3- to 7-flowered; glumes 2-3 mm long, the lower ones 3-nerved; rachilla internodes mostly less than 1 mm long, smooth to minutely bumpy; lemmas lanceolate, 2.3-3.5 mm long, the tips sharp-pointed, keel and marginal nerves short silky-hairy, hairless between the nerves; calluses hairless or more often cobwebby; palea keels rough; flowers bisexual; anthers 1.3-1.8 mm long.

***Poa confinis* Vasey**

beach bluegrass

HABITAT/RANGE:

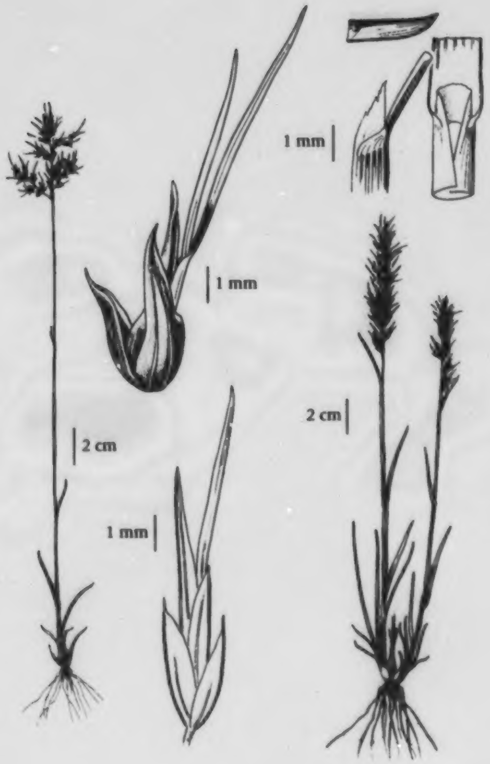
Semi-stable sandy sites and beaches in the lowland zone; infrequent in coastal BC; S to N CA.

DESCRIPTION:

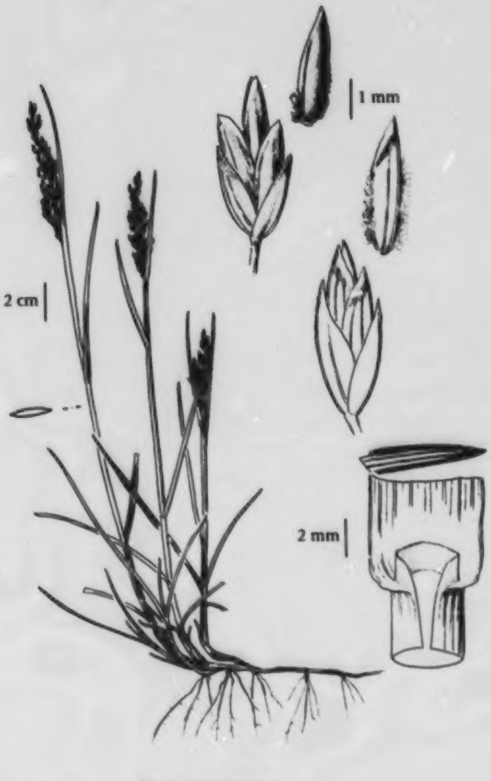
General: Perennial grass from fibrous roots, rhizomes and stolons; stems erect or decumbent, 7-30 cm tall, about 0.5 mm wide.

Leaves: Sheath margins open 1/3-2/3 their length; sterile shoots slender, tufted; blades 0.5-1.5 mm wide, in-rolled, mostly threadlike, moderately thick, outer surface smooth, inner surface of blades of sterile shoots usually distinctly rough or minutely soft-hairy; ligules 0.5-2 mm long, the tips blunt to sharp-pointed, backs rough.

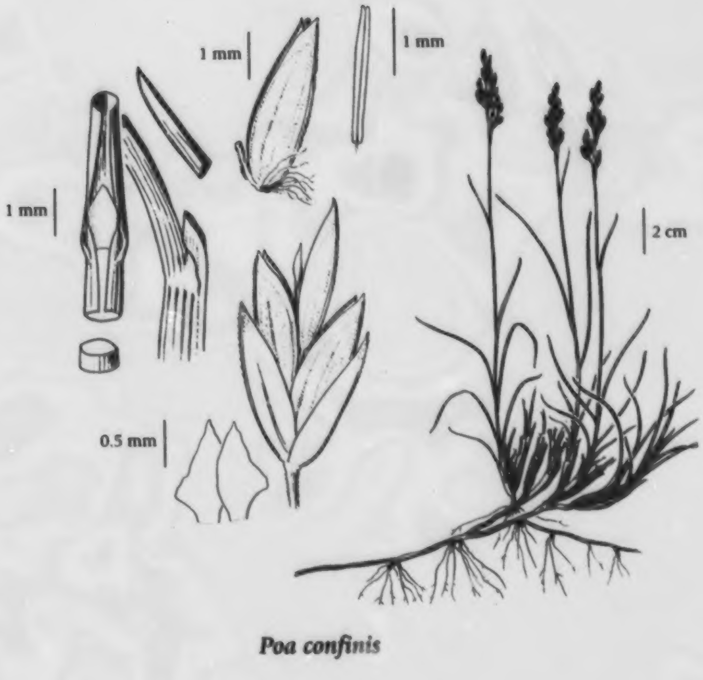
Flowers: Inflorescence an erect panicle, 1-5 cm long, moderately congested, loosely contracted, the branches 1 to 2 per node, sparsely to distinctly rough; spikelets laterally compressed, 3-8 mm long, 2- to 5-flowered; glumes unequal, the lower ones 2.5-3 mm long, 1- to 3-nerved, the upper ones 3-4 mm long; rachillas hairless or sparsely minutely soft-hairy; lemmas lanceolate, 2.5-4 (4.5) mm long, the tips sharp-pointed, surface finely rough, hairless, or keel and some marginal nerves sparsely minutely soft-hairy below; calluses hairless or diffusely, shortly, sparsely cobwebby; palea keels rough; flowers of different plants female, male or all or partially bisexual (mixed female and bisexual); anthers vestigial or 1.5-2 mm long.


1 mm
1 mm
2 cm
1 mm
2 cm

Poa bulbosa ssp. *vivipara*



Poa compressa


1 mm
1 mm
1 mm
2 cm
0.5 mm

Poa confinis

***Poa cusickii* Vasey** (*P. epilis* Scribn., *P. purpurascens* var. *epilis* [Scribn.] M.E. Jones = ssp. *epilis*; *P. subaristata* Scribn. *ex* Beal *non*. Phil. = ssp. *pallida*; *P. alpina* var. *purpurascens* Vasey, *P. purpurascens* Vasey *non* Spreng. = ssp. *purpurascens*)

Cusick's bluegrass

HABITAT/RANGE:

Dry to mesic meadows, talus slopes and ridges in the montane to lower alpine zones; ssp. *epilis* – frequent throughout BC; ssp. *pallida* – infrequent in SE BC; ssp. *purpurascens* – frequent in SC and SW BC; ssp. *epilis* – E to AB and S to CO, UT, NV and CA; ssp. *pallida* – N to S YT, E to MB and S to ND, CO, UT, NV and CA; ssp. *purpurascens* – S to CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems erect or decumbent, 10-50 cm tall/long.

Leaves: Sheath margins open 1/4-3/4 their length; sterile shoots emerging inside sheaths, or also breaking through sheath bases; blades 0.5-2 mm wide, those of sterile shoots in-rolled, moderately thick, outer surface smooth or rough, inner surface usually distinctly rough or minutely soft-hairy, leaf blades of lateral shoots folded to in-rolled and rough to more or less stiff-hairy on and between the veins of the upper surfaces; ligules of sterile shoots 0.5-2.5 mm long, the tips blunt to rounded, the backs rough.

Flowers: Inflorescence of mostly erect panicles, 2-12 cm long, mostly congested, lanceolate to egg-shaped, the branches 1 to 2 per node, appressed or steeply ascending, moderately strict, smooth or rough; spikelets strongly laterally compressed, (3) 4-8 (10) mm long, 2- to 6-flowered; glumes unequal, the lower ones 3.5-5 mm long, 3-nerved, the upper ones 4.5-6 mm long; rachillas smooth or rough; lemmas lanceolate to broadly lanceolate, 4-7 mm long, the tips sharp-pointed, surface membranous, smooth or rough, hairless (or keel and marginal nerves minutely soft-hairy below in ssp. *purpurascens*), lateral nerves obscure to prominent; calluses hairless (or short, sparsely cobwebby in ssp. *purpurascens*); palea keels rough; flowers usually unisexual; anthers vestigial, aborted late in development, or 2-3.5 mm long.

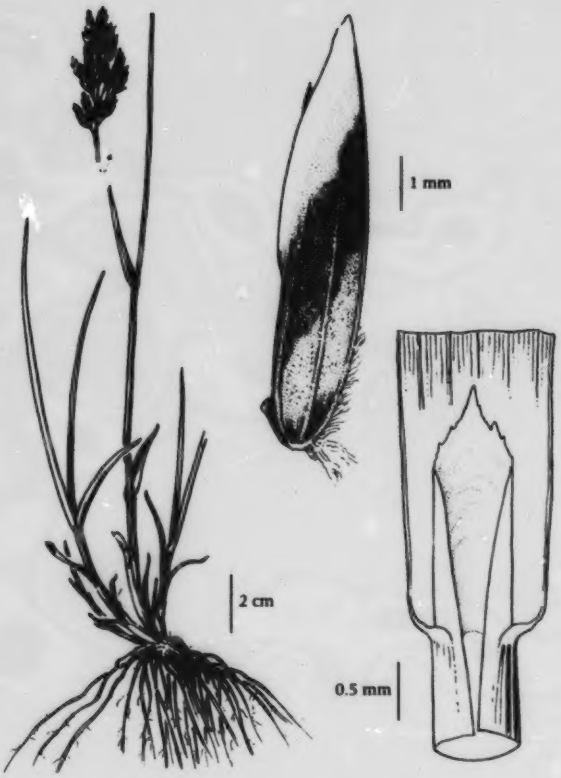
Notes: Three subspecies occur in BC. These include two female, apomictic subspecies (ssp. *epilis* and ssp. *purpurascens*) and a sexual, although often apomictic subspecies (ssp. *pallida*):

1. Basal tuft of leaves dense, basal shoots arising from within the sheaths, lacking bladeless leaves below; all stem nodes enclosed in the sheaths or the uppermost barely exposed; stem leaf blades similar to, or somewhat broader than those of the basal shoots, rarely flat, blades of basal shoots more or less threadlike, mostly less than 1 mm wide when expanded .... ssp. *pallida* Soreng

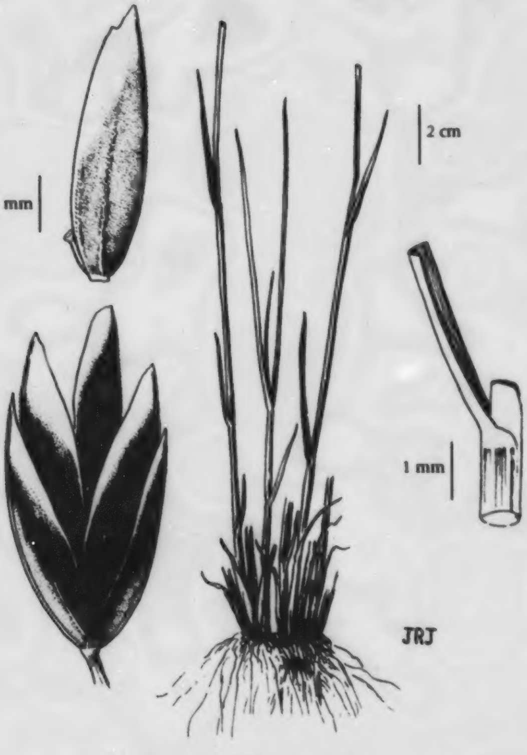
1. Basal tuft of leaves looser, basal shoots, in part, arising externally to the sheath, with bladeless leaves below; at least one stem node well exserted and exposed at maturity; stem leaf blades frequently wider than those of the basal shoots, and flat or folded, basal shoot blades up to 3 mm wide when expanded.

    2. Lemmas of at least some of the lower florets of some spikelets very sparsely to moderately hairy on the base of the keels and frequently with a few hairs on the calluses; panicles loosely contracted and with less than 20 spikelets .... ssp. *purpurascens* (Vasey) Soreng

    2. Lemmas of all florets smooth to rough; panicles tending to be compact, strict, and with more than 20 spikelets .... ssp. *epilis* (Scribn.) Weber


1 mm
2 cm
0.5 mm

Poa cusickii ssp. *purpurascens*


2 cm
1 mm
1 mm
JRJ

Poa cusickii ssp. *epilis*

***Poa eminens* J. Presl** (*Arctopoa eminens* [J. Presl] Probat.)

eminent bluegrass

HABITAT/RANGE:

Coastal salt marshes and gravelly beaches in the lowland zone; rare in coastal BC, known only from Kitimat and Douglas Channel; amphiberingian, N to AK and NT, disjunct E to ON, PQ and NF; E Asia.

DESCRIPTION:

General: Perennial tufted or untufted grass from fibrous roots and rhizomes; stems stout, 20-100 cm tall.

Leaves: Sheath margins open 1/6-1/4 their length; shoots if present, isolated, robust, often glaucous; blades 4-11 mm wide, flat, thick, smooth to slightly rough; ligules 1-3.5 mm long, yellowish-cream to brownish, the tips blunt, jagged, rough.

Flowers: Inflorescence an erect panicle, 8-30 cm long, congested, the branches ascending, smooth or slightly rough; spikelets laterally compressed, 5-12 mm long, 2- to 6-flowered; glumes often glaucous, sharp-pointed to long-pointed, the lower ones 4-9.5 mm long, 1- to 3- (5-) nerved, the upper ones 5.5-10 mm long, (1-) 3- (5-) nerved; rachillas smooth, infrequently sparsely and minutely soft-hairy; lemmas lanceolate, 4.5-7 mm long, the tips sharp-pointed, thinly membranous, 5- to 7-veined, surface finely rough to short straight-hairy, keel and marginal nerves sometimes long silky-hairy; calluses usually with a crown of 1-2 mm long slightly wavy hairs around base; palea keels rough; flowers bisexual; anthers 1.7-3.2 mm long.

***Poa fendleriana* (Steud.) Vasey** (*Eragrostis fendleriana* Steud. = ssp. *fendleriana*; *P. longiligula* Scribn. & T. A. Will. = ssp. *longiligula*)

mutton grass; long-tongue mutton grass

HABITAT/RANGE:

Dry slopes, talus, and ridges in the steppe and lower montane zones; ssp. *fendleriana* – rare in SC BC; ssp. *longiligula* – infrequent in BC; ssp. *fendleriana* E to MB and S to TX, NM, AZ and CA; ssp. *longiligula* – S to SD, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots and rhizomes, the rhizomes often short and inconspicuous; stems erect or decumbent, 15-70 cm tall/long.

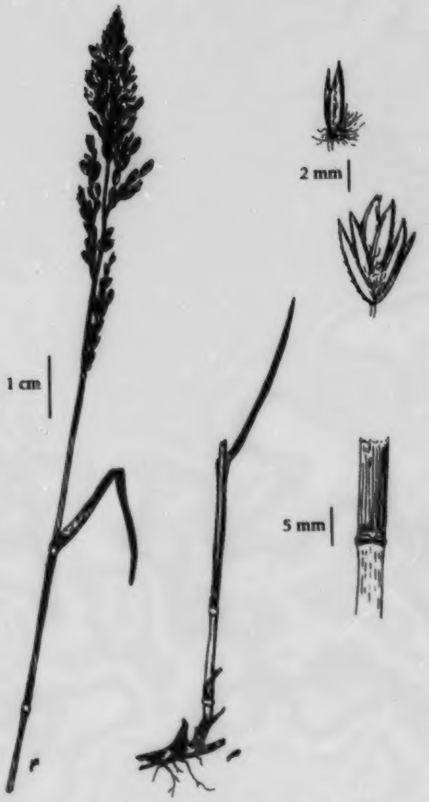
Leaves: Sheath margins open about 2/3 their length; sterile shoots mainly emerging inside sheaths with well-developed two-keeled buds protecting the scales; blades (0.5) 1-2 (4) mm wide, in-rolled, thick, outer surface smooth; upper ones often absent or very reduced, the uppermost one often vestigial, rigid, always less than 1/5 the sheath length, inner surface of blades of sterile shoots usually distinctly rough or minutely soft-hairy; ligules 0.2-1.8 mm long, the backs smooth or rough.

Flowers: Inflorescence an erect panicle, 2-12 (30) cm long, lanceolate to egg-shaped, congested, frequently with more than 100 spikelets, the branches 1 to 2 per node, appressed at maturity, smooth or rough; spikelets laterally compressed, (3) 4-8 (12) mm long, 2- to 7- (13-) flowered; the lower glumes 1- to 3-nerved; rachillas smooth, hairless, sparsely short straight-hairy, or sparsely minutely soft-hairy; lemmas lanceolate, 3-6 mm long, the tips sharp-pointed, surface smooth or slightly rough, keel and lateral nerves long silky-hairy, lateral nerves minutely soft- to short silky-hairy, internerves hairless or infrequently minutely soft-hairy; calluses hairless; palea keels rough, medially somewhat minutely soft or short silky-hairy; flowers female; anthers non-functional.

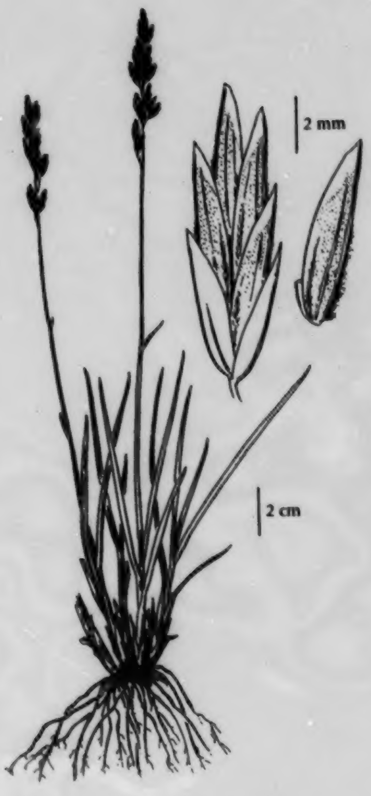
Notes: Two female-flowered, apomictic subspecies occur in BC:

1. Ligules more than 1.5 mm long, extending down from the base on the margins of the sheaths .... ssp. *longiligula* (Scribn. and T. Williams) Soreng

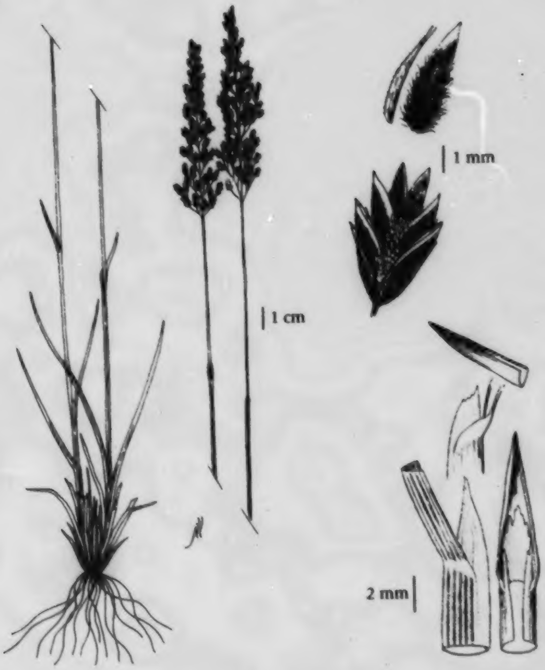
1. Ligules less than 1.5 mm long, not extending down from the base .... ssp. *fendleriana*



Poa eminens



Poa fendleriana ssp. *longiligula*



Poa fendleriana ssp. *fendleriana*

Poa glauca **Vahl** (*P. rupicola* Nash = ssp. *rupicola*)

glaucous bluegrass; timberline bluegrass

HABITAT/RANGE:

Dry ridges, grassy slopes, stony meadows and mossy ledges in the montane to alpine zones; common throughout BC; ssp. *glauca* – circumpolar, N to AK, YT and NT, E to NF and S to ME, WI, MN, NM, UT, ID and OR; Iceland, Eurasia; ssp. *rupicola* – N to YT, E to MB and S to SD, NM, AZ and CA.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems erect to spreading, stiff, wiry, straight or slightly decumbent, 5-40 cm tall, usually with 0 or 1 node exserted, uppermost node usually in lowermost 1/3 of stem.

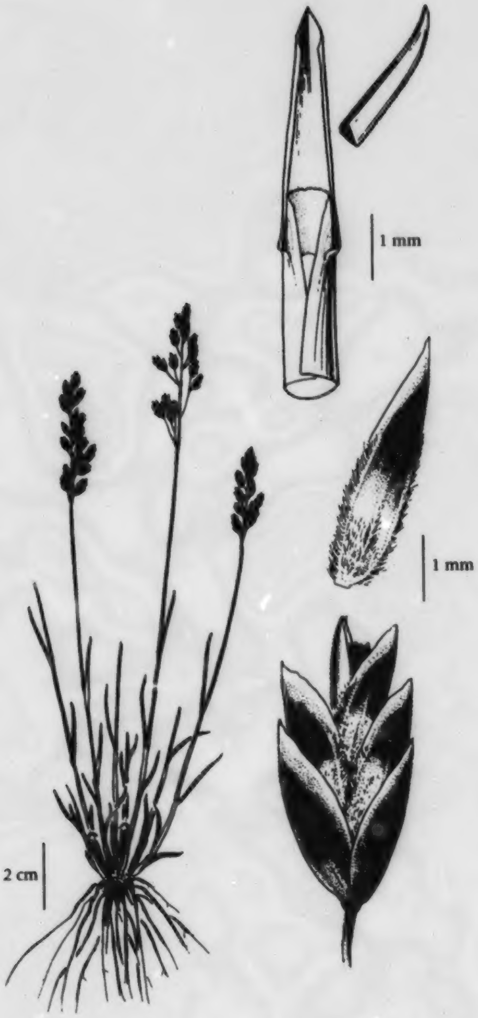
Leaves: Sheath margins open 4/5-9/10 their length, top stem sheath 3-10 cm long; sterile shoots all or most flowering within a season, next year's shoots set late in the growing season, mostly breaking through sheath bases with indistinct two-keeled buds protecting the scales; basal bladeless leaves present; blades 0.8-2.5 mm wide, mostly flat, appressed or abruptly ascending to spreading, stiff, soon withering; top stem blades usually distinctly shorter than their sheaths (length ratio mostly 0.25-1:1); ligules 1-4 (5) mm long, the tips rounded to sharp-pointed, minutely rough, the backs more or less finely rough.

Flowers: Inflorescence an erect panicle, 1-10 cm long, narrowly lanceolate to egg-shaped, contracted or open, sparingly branched and flowered, lowermost internodes less than 1 cm long (rarely more), the primary branches 2 to 3 (5) per node, ascending to spreading, stout, moderately to distinctly rough on angles (rarely nearly smooth), the stalks long-exserted, the spikelet stalks mostly shorter than spikelets; spikelets laterally compressed, 3-8 mm long, (2-) 3- to 5-flowered; glumes narrowly to broadly lanceolate, the keels distinct, the lower ones 3-nerved; rachilla internodes mostly less than 1 mm long, smooth, minutely bumpy, or rough, or hairless or frequently sparsely short straight-haired to moderately minutely soft-hairy; lemmas lanceolate to broadly lanceolate, keeled, 2.5-4 mm long, the tips usually bronze-coloured in part, sharp-pointed, keels and marginal nerves short silky-hairy, lateral nerves usually short silky-hairy or sparsely minutely soft-hairy, between nerves hairless or minutely crisp- to soft-hairy; calluses hairless or cobwebby, often minutely so; palea keels rough, hairless or medially minutely soft-hairy; flowers bisexual (some appearing female-like due to aborted anthers); anthers (1) 1.2-2.5 mm long, well-developed or infrequently aborted late in development.

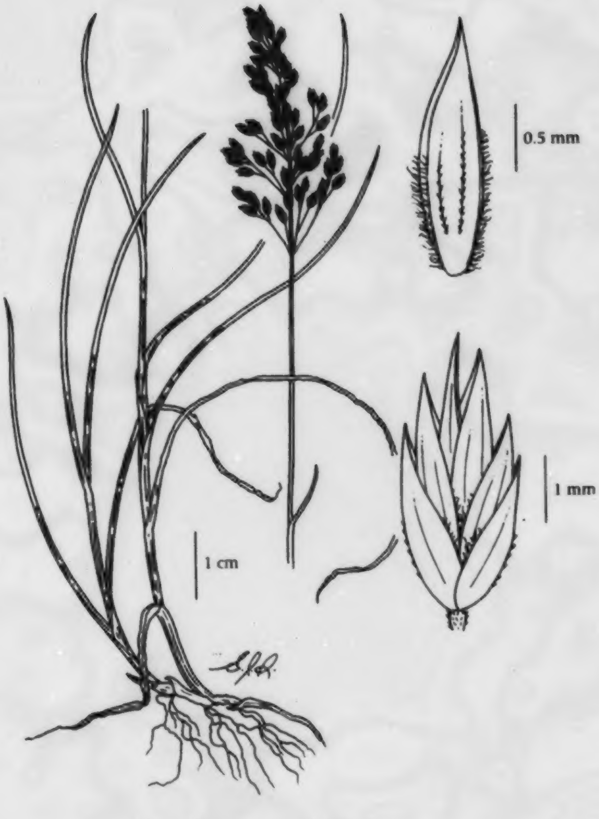
Notes: Two subspecies occur in BC:

1. Lemmas short-hairy between the nerves; calluses of all florets entirely hairless; dwarf alpine plants .... ssp. *rupicola* (Nash) W.A. Weber

1. Lemmas variously short-hairy or hairy; calluses webbed or not; if dwarf alpine plants, then calluses of at least the basal florets within a spikelet with at least a vestige of a web or the lemmas smooth between the nerves .... ssp. *glauca*



Poa glauca ssp. *rupicola*


0.5 mm
1 mm
1 cm

Poa glauca ssp. *glauca*

Poa howellii **Vasey & Scribn.**

Howell's bluegrass

HABITAT/RANGE:

Mesic grassy meadows and dry Garry oak woodlands and rock outcrops in the lowland zone; infrequent in extreme SW BC; S to CA.

DESCRIPTION:

General: Annual tufted grass from fibrous roots; stems 25-80 cm tall.

Leaves: Sheath margins open 1/7-1/2 their length; blades 1-7 mm wide, flat, gradually tapered to the tips; ligules 1.5-5 (10) mm long, the backs smooth.

Flowers: Inflorescence an erect panicle, 10-25 cm long, open, the branches (1) 3 to 5 (7) per node, ascending in flower, spreading to reflexed in fruit, generally moderately to distinctly rough; spikelets laterally compressed, 4-6 mm long, 3- to 5-flowered; lower glumes 1- to 3-nerved; rachilla internodes about 1 mm long, hairless or hairy; lemmas 2.5-3.5 mm long, evenly crisply short-hairy below, lateral nerves obscure; calluses cobwebby; palea keels rough, somewhat short-hairy; anthers 0.2-1 mm long.

Poa infirma **Kunth (*P. exilis* [Tomm.] Murb. *ex* Asch. & Graeb.)**

diploid annual bluegrass

HABITAT/RANGE:

Mesic sites in the lowland zone; rare in SW BC, known only from Trial Island; introduced from S Europe.

DESCRIPTION:

General: Annual tufted grass from fibrous roots; stems 2-15 cm tall.

Leaves: Sheath margins open about 2/3 their length; sterile shoots emerging inside the sheaths with indistinct two-keeled buds protecting the scales; blades 1-4 mm wide, flat, thin; ligules 0.5-3 mm long, the backs smooth, hairless.

Flowers: Inflorescence an erect panicle, 1-6 cm long, 1.5-3 times longer than wide, the branches 1 to 2 (5) per node, ascending; spikelets laterally compressed, 3-5 mm long, 2- to 6-flowered; the lower glumes 1-nerved; rachillas smooth, hairless, visible from the side, terminal internodes 1/2-3/4 the length of the terminal lemmas; lemmas lanceolate, 2-2.5 mm long, the tips rounded to sharp-pointed, surface smooth, keel, marginal, and lateral nerves short silky-hairy, lateral nerves moderately prominent; calluses hairless; palea keels silky-hairy; flowers bisexual, or the upper ones in a spikelet female; anthers 0.1-0.5 mm long, more or less globe-shaped prior to opening.

Poa laxa **Haenke ssp. *banffiana* Soreng**

Banff bluegrass

HABITAT/RANGE:

Moist meadows and ridges in the alpine zone; rare in SE BC, known only from Simpson Pass and Valley of the Ten Peaks; S to WY and OR.

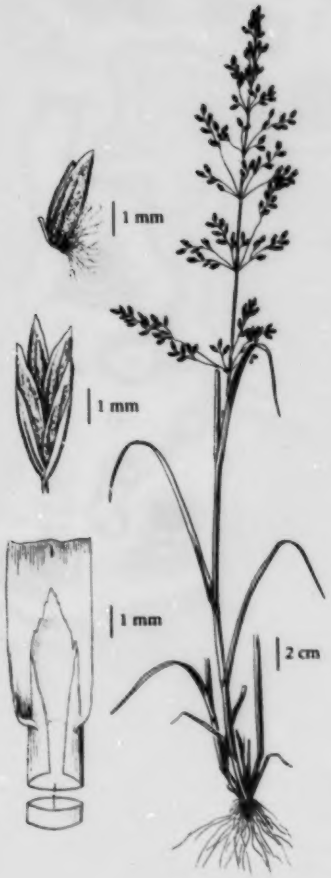
DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots, not or only slightly glaucous; stems 8-35 cm tall.

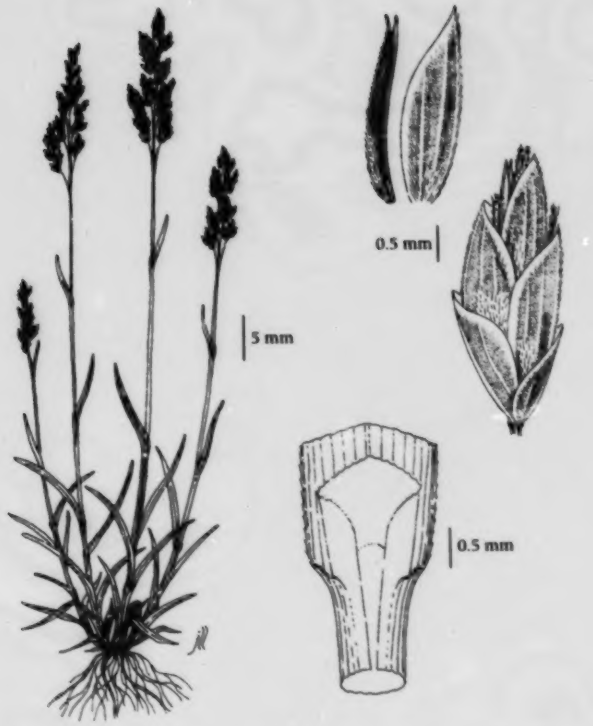
Leaves: Sheath margins open 2/3-4/5 their length; sterile shoots mainly breaking through sheath bases; blades 1-2 (3) mm wide, flat, thin; ligules 2-4 mm long, the tips sharp-pointed, often jagged, the backs smooth.

Flowers: Inflorescence a loosely congested to open panicle, 2-8 cm long, sparse (to moderately dense), the branches 2 to 3 (5) per node, steeply ascending, stiff, slightly grooved, smooth or very slightly rough, longest ones usually 1-3.5 cm long; spikelets laterally compressed, 4-6 mm long, 2- to 5-flowered; glumes lanceolate to broadly lanceolate, thin, nearly equal to or slightly longer than their adjacent lemmas, the lower ones 3-nerved; rachilla internodes less than 1 mm long, smooth, hairless; lemmas lanceolate, 3-4.6 mm long, the tips sharp-pointed, thinly membranous, keel and marginal nerves silky-hairy to 1/2 the length, lateral nerves faint, hairless or very sparsely minutely short silky-hairy, hairless between the nerves; calluses hairless; palea keels slightly rough; flowers bisexual; anthers 0.8-1.1 mm long.

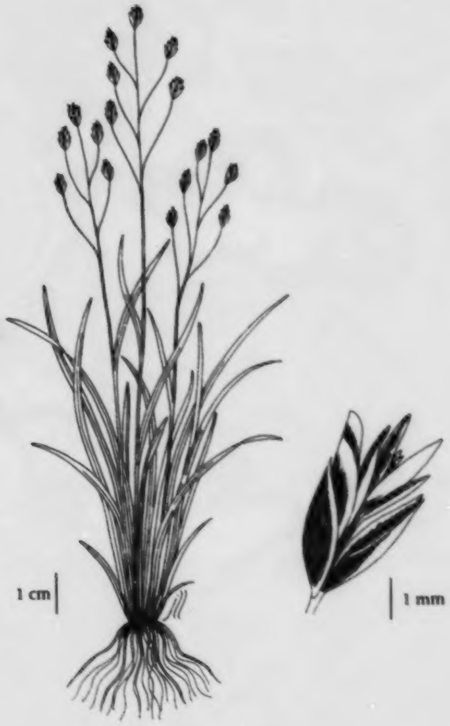
Notes: This species has not been collected in BC since 1943 (Soreng 1991).


1 mm
1 mm
1 mm
2 cm

Poa howellii


0.5 mm
5 mm
0.5 mm

Poa infirma



Poa laxa ssp. *banffiana*

***Poa laxiflora* Buckl.**

lax-flowered bluegrass

HABITAT/RANGE:

Moist old-growth forests and rocky slopes in the lowland and montane zones; infrequent in and W of the Coast-Cascade Mountains; N to SE AK and S to NW OR.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots and long rhizomes or with isolated shoots; stems 50-120 cm tall.

Leaves: Sheaths usually rough, the projections pointed downward, the margins open 1/4-1/2 their length; blades 3-6 mm wide, flat, narrowly prow-tipped; ligules 2-3.5 mm long, the backs smooth or slightly rough.

Flowers: Inflorescence a panicle, 14-30 cm long, open, sparse, the branches mostly 1 to 2 per node, widely spreading, the longest 5.5-12 cm long, slightly to moderately rough-angled; spikelets laterally compressed, 4-8 mm long, 2- to 4-flowered; lower glumes 1- to 3-nerved; rachilla internodes about 1 mm long, smooth, hairless; lemmas lanceolate, 3.2-6 mm long, the tips sharp-pointed, surface smooth or sparsely rough, the keels and marginal nerves sparsely short silky-hairy, lateral nerves rarely sparsely, minutely soft-hairy and moderately prominent, hairless between the nerves; calluses cobwebby; palea keels more or less rough, hairless; flowers bisexual, normal (rarely bulbiferous); anthers 0.5-1.1 mm long.

***Poa leptocoma* Trin.**

bog bluegrass

HABITAT/RANGE:

Wet to moist meadows, streams and bogs in the subalpine and alpine zones; frequent throughout BC except absent in NE BC; amphiberingian, N to AK and SW YT and S to NM, AZ and CA; E Asia.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots; stems 15-50 cm tall.

Leaves: Sheaths minutely rough-hairy, the margins open 2/5-3/4 their length; blades 1-4 mm wide, flat, thin, weakly prow-tipped; ligules 1.5-4 mm long, the tips blunt to rounded, the backs smooth or slightly rough.

Flowers: Inflorescence a lax panicle, 5-15 cm long, sparse, open, the branches 1 to 3 (5) per node, spreading to reflexed, hairlike, slightly rough to rough on angles; spikelets laterally compressed, 4-8 mm long, 2- to 5-flowered; glumes awl-like to narrowly lanceolate, thin, the lower 1-nerved; rachillas smooth, hairless; lemmas broadly lanceolate, 3-4 mm long, the tips narrowly sharp-pointed, usually bronze or purple-coloured, surface thinly membranous, smooth, the keels (up to 2/3 the length) and marginal nerves sparsely silky-hairy, hairless between the nerves; calluses sparsely cobwebby; palea keels smooth, slightly rough or comb-like; flowers bisexual; anthers 0.2-1.1 mm long.

***Poa lettermanii* Vasey (*P. montevensi* Kelso)**

Letterman's bluegrass

HABITAT/RANGE:

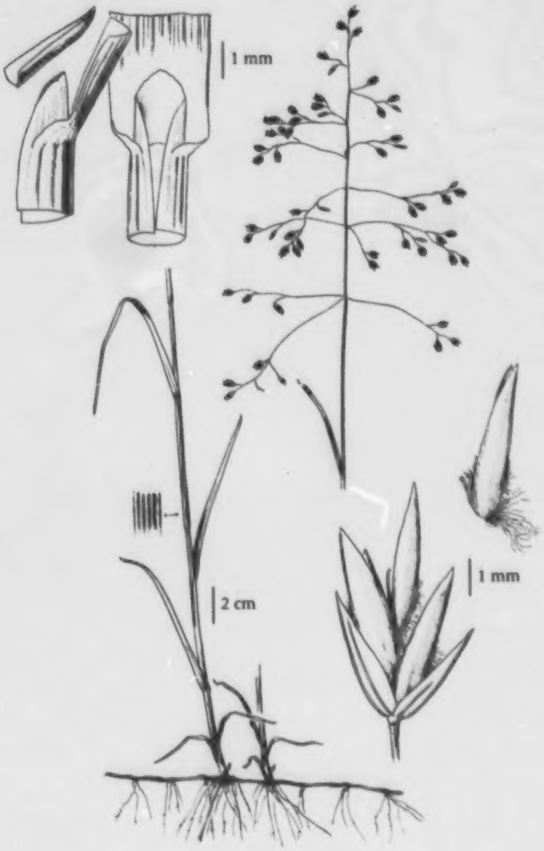
Mesic to dry rocky slopes and meadows in the subalpine and alpine zones; infrequent throughout BC east of the Coast Mountains; S to CO, UT, NV and CA.

DESCRIPTION:

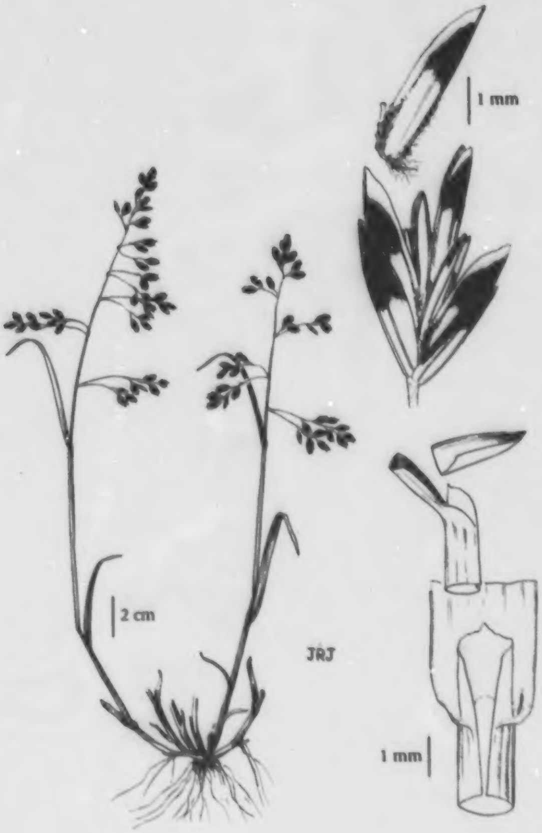
General: Perennial, densely tufted grass from fibrous roots; stems 1-12 cm tall.

Leaves: Sheath margins open 3/4-7/8 their length; blades 0.5-2 mm wide, flat or folded, thin; ligules 1-3 mm long, the backs smooth.

Flowers: Inflorescence an erect panicle, 1-3 cm long, contracted, usually exserted from the top sheath, the branches appressed to ascending, slender, to 1.5 cm long, smooth, slightly grooved; spikelets laterally compressed, usually green, 3-4 mm long, longer than the stalks, 2- to 3-flowered; glumes usually equalling or exceeding the lower lemmas, the lower glumes 3-nerved; rachilla internodes less than 1 mm long, smooth; lemmas lanceolate, 2.5-3 mm long, thinly membranous, surface hairless or keels and marginal nerves sparsely minutely soft-hairy below; calluses hairless; palea keels rough; flowers bisexual; anthers 0.2-0.8 mm long.



Poa laxiflora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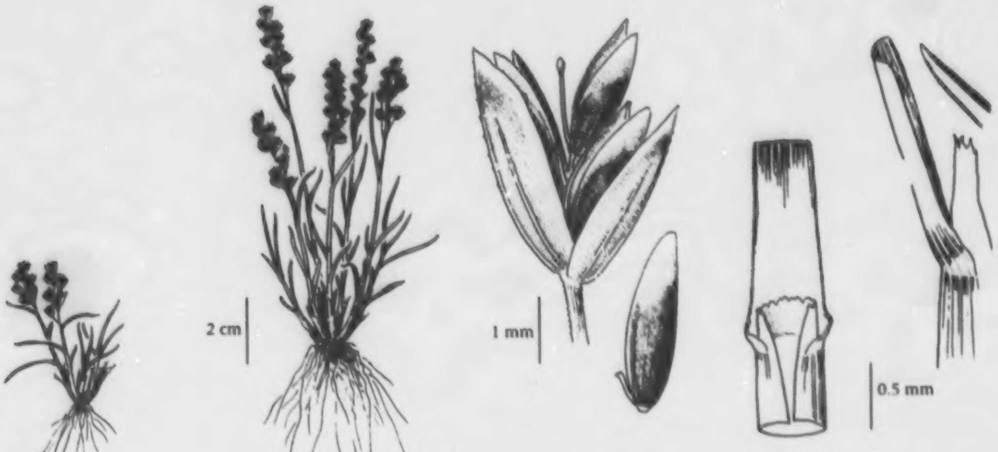
2 cm
JRJ
1 mm

Poa leptocoma


2 cm
1 mm
0.5 mm

Poa lettermanii

***Poa macrantha* Vasey** (*P. douglasii* Nees ssp. *macrantha* [Vasey] D. D. Keck)

dune bluegrass

HABITAT/RANGE:

Shifting sands (especially dunes) in the lowland zone; infrequent in coastal BC; N SE AK and S to N CA.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots, rhizomes and stolons, these shoots stout, to 4 m long; stems erect or decumbent, stout, 10-60 cm tall/long.

Leaves: Sheath margins open about 1/2 their length, sheaths hairless or sparsely rough, the projections pointed downward; sterile shoots mainly emerging inside sheaths with well developed two-keeled buds protecting the scales; blades 2-4 mm wide, somewhat curved, in-rolled, thick, outer surface smooth, inner surface of sterile shoots usually distinctly rough or minutely soft-hairy; ligules 1-5 mm long, the tips rounded to sharp-pointed, the backs rough.

Flowers: Inflorescence an erect panicle, 3-15 cm long, congested, often interrupted; stalks smooth to moderately rough, hairless; central axis and branches slightly to moderately rough, branches 1 to 2 per node; spikelets laterally compressed, 9-16 mm long, 3- to 6-flowered; lower glumes 3-nerved, the upper ones usually more than 7 mm long; rachillas smooth, silky-hairy (rarely hairless); lemmas lanceolate, (6) 7.5-11 mm long, the tips sharp-pointed, 5- to 7- (11-) nerved, surface smooth or rough, the keels, marginal nerves and some lateral nerves minutely soft- to short silky-hairy, smooth and hairless to rough or minutely soft-hairy between the nerves; calluses hairless, diffusely short-cobwebby, or with a crown of wavy hairs; palea keels rough; flowers unisexual; anthers vestigial or 2-5 mm long.

***Poa marcida* A.S. Hitchc.**

weeping bluegrass

HABITAT/RANGE:

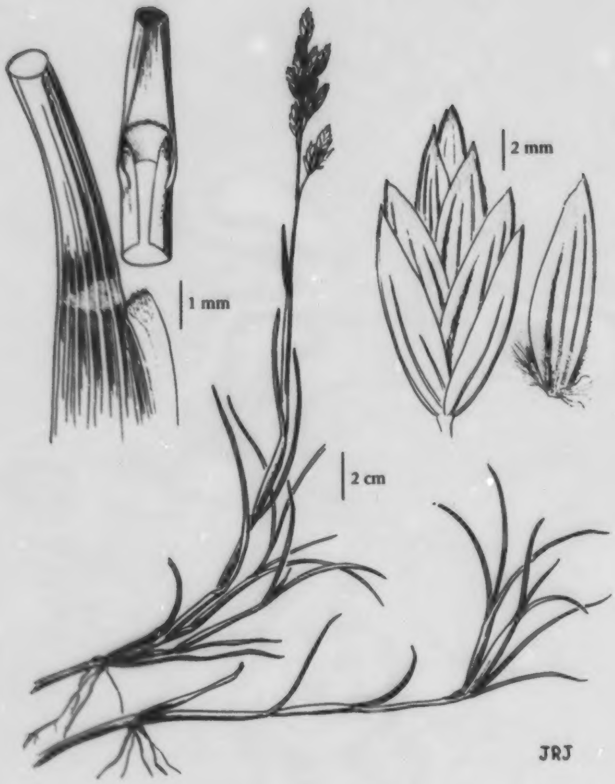
Wet to moist meadows and bogs in the lowland zone; infrequent on Vancouver Island; rare in the lower Fraser valley (Vancouver); S to NW OR.

DESCRIPTION:

General: Perennial, loosely to densely tufted grass from fibrous roots, sometimes with short rhizomes; stems 20-80 cm tall.

Leaves: Sheaths smooth, the margins open about 1/10 their length; sterile shoots emerging mainly inside sheaths with tubular two-keeled buds protecting the scales; blades 1.5-5 mm wide, flat; ligules 0.5-2 mm long, the tips blunt, the backs smooth.

Flowers: Inflorescence a lax panicle, 6-22 cm long, narrowly lanceolate, sparse, the branches 1 to 3 per node, ascending, lax, rough on angles; spikelets laterally compressed, 3.5-7 mm long, (1-) 2- (4-) flowered; lower glumes 1-nerved; rachilla internodes about 1 mm long, smooth, hairless; lemmas narrowly lanceolate, 3.2-5 mm long, the tips long-pointed, surface smooth, hairless, the lateral nerves moderately prominent; calluses sparsely cobwebby; palea keels smooth to rough; flowers bisexual; anthers 0.5-1.2 mm long.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2 cm
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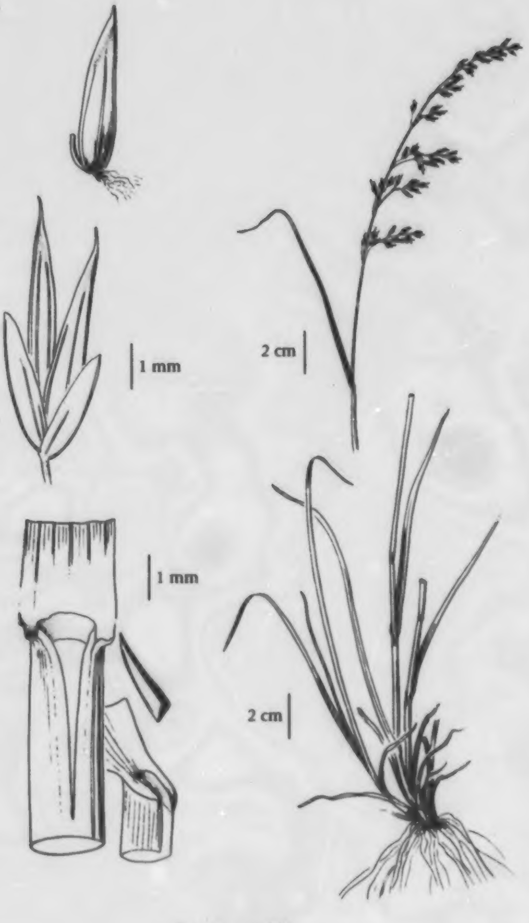
Poa macrantha


1 mm
2 cm
1 mm
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Poa marcida

***Poa nemoralis* L.** (*P. interior* Rydb. = ssp. *interior*)

interior bluegrass (ssp. *interior*); **woods bluegrass** (ssp. *nemoralis*)

HABITAT/RANGE:

Dry to mesic meadows, rocky slopes and open forests in the montane zone (ssp. *interior*); moist forests and disturbed sites in the lowland zone (ssp. *nemoralis*); frequent E of the Coast-Cascade Mountains (ssp. *interior*), infrequent in SW BC (ssp. *nemoralis*); N to AK, YT and NT, E to PQ and S to VT, IL, MO, TX, NM, ID and WA (ssp. *interior*), introduced from Eurasia (ssp. *nemoralis*).

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, green or glaucous; stems mostly erect or ascending, 5-80 cm tall, 0 to 5 nodes exserted, uppermost node usually in the middle to upper 1/3 of stem.

Leaves: Sheath margins open 4/5-9/10 their length; sterile shoots all or most flowering within a season, next year's shoots set late in the growing season, all or most breaking through sheath bases with indistinct two-keeled buds protecting the scales; basal leaves bladeless; blades 0.8-3 mm wide, mostly flat, appressed or abruptly ascending to spreading, strict or somewhat lax; ligules 0.2-3 mm long, the tips blunt to rounded, minutely rough, the backs distinctly rough.

Flowers: Inflorescence an erect or lax panicle, 4-20 cm long, narrowly lanceolate to egg-shaped, sparsely to moderately congested, the branches 2 to 5 per node, ascending to widely spreading, slender, moderately to distinctly rough on angles, the stalks shortly exserted; spikelets laterally compressed, 3-8 mm long, (1) 2- to 5-flowered; glumes awl-like to lanceolate, the lower ones 3-nerved; rachilla internodes mostly less than 1 mm long, smooth or rough, hairless or minutely soft-hairy; lemmas narrowly lanceolate to lanceolate, 2.4-4 mm long, the tips usually bronze-coloured in part, sharp-pointed, the keels and marginal nerves short silky-hairy, hairless or infrequently sparsely and minutely soft-hairy between the nerves; calluses sparsely and often short-cobwebby (rarely hairless); palea keels rough; flowers bisexual (some appearing female-like due to aborted anthers); anthers (0.8) 1.2-2.5 mm long.

Notes: Two subspecies occur in BC:

1. Uppermost culm nodes located on the upper 2/3 of the culms, 2-4 nodes exposed at maturity; ligules less than 0.8 (1) mm long; culms not rough below the panicles; lowest glumes awl-like to narrowly lanceolate, nearly equaling the lowest lemmas in length .... ssp. *nemoralis*

1. Uppermost culm nodes located on the lower 1/2 of the culms (sometimes higher), 0-2 (3) nodes exposed at maturity; ligules more than (0.8) 1 mm long; culms sometimes rough below the panicles; lowest glumes narrowly to broadly lanceolate, 3/4 or less the length of the lowest lemmas .... ssp. *interior* (Rydb.) W. A. Weber

***Poa nervosa* (Hook.) Vasey** (*Festuca nervosa* Hook.)

coastal bluegrass

HABITAT/RANGE:

Moist forest slopes and mossy ledges along streams in the lowland and montane zones; rare in SW BC, known only from Nootka Sound; S to NW OR.

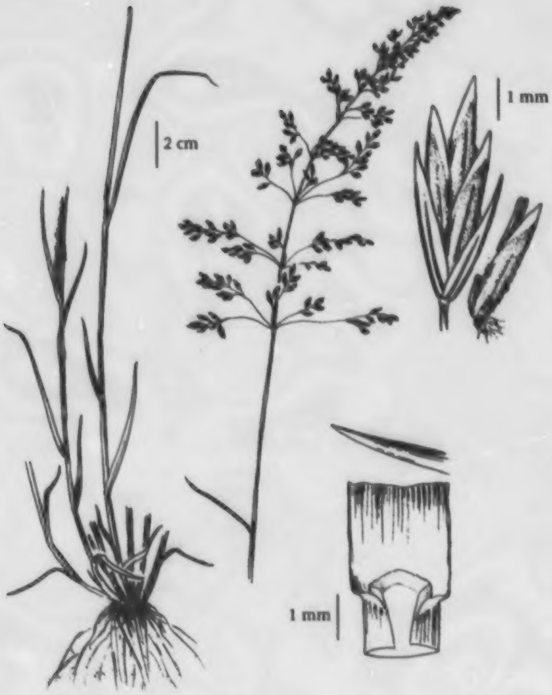
DESCRIPTION:

General: Perennial, densely to loosely tufted grass from fibrous roots and short rhizomes or with isolated shoots; stems 20-65 cm tall.

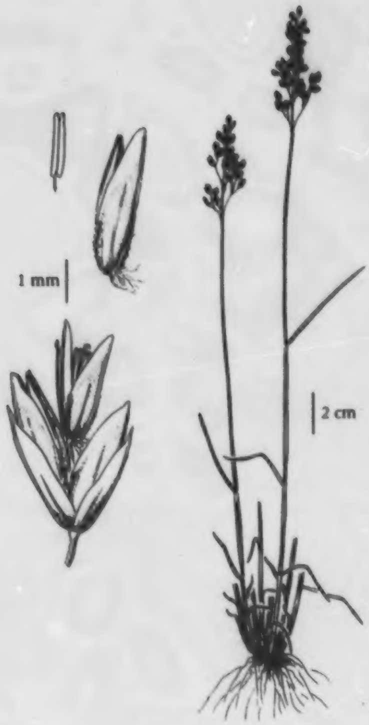
Leaves: Sheaths compressed, margins open 1/10-1/3 their length, slightly rough, hairless or sparsely or minutely soft-hairy; collars of lowermost leaves usually hairy on the margins, the hairs longer than on the sheaths; blades 2-4.5 mm wide, usually flat, upper ones mostly 3-8 cm long; ligules 0.5-1.5 mm long, the tips blunt to rounded, the backs smooth or minutely soft-hairy.

Flowers: Inflorescence an erect or lax panicle, 8-15 cm long, egg-shaped to pyramidal, open or loosely contracted, sparse, lowermost internodes 1.8-3.5 cm long, the branches mostly 3 to 5 per node, ascending to spreading, moderately rough; spikelets laterally compressed, 4-7 mm long, 3- to 8-flowered; glumes 2/3-4/5 as long as adjacent lemmas, the lower ones 1- to 3- (5-) nerved; rachillas smooth or rough, hairless or sparsely short straight-hairy; lemmas lanceolate, 3-4.5 mm long, the tips sharp-pointed, surface smooth or finely rough, the keels and marginal nerves hairless or infrequently sparsely minutely soft- to short silky-hairy at the bases, hairless or short straight-haired between the nerves; calluses hairless (rarely minutely cobwebby); palea keels rough; flowers bisexual or female; anthers non-functional or 2.5-4 mm long.

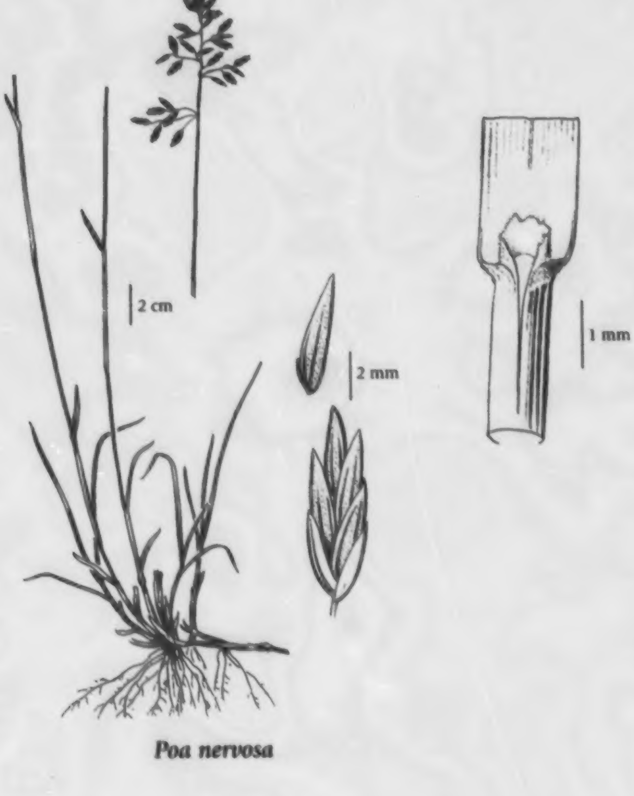
Notes: In BC this species is known only from the 1854 collection at the type locality at Nootka Sound.



Poa nemoralis ssp. *nemoralis*



Poa nemoralis ssp. *interior*



Poa nervosa

***Poa palustris* L.**

fowl bluegrass

HABITAT/RANGE:

Wet to moist disturbed areas, meadows, ditches, shrublands and riparian sites in the lowland and montane zones; frequent in S and W BC; circumboreal, N to AK, YT and NT, E to NF and S to ME, NY, SC, TN, MS, NE, NM, AZ and CA; Eurasia.

DESCRIPTION:

General: Perennial, densely to loosely tufted grass from fibrous roots, sometimes with stolons; stems erect or decumbent, 25-120 cm tall/long, some branching above base, uppermost node above middle.

Leaves: Top stem blade to sheath length ratio mostly 0.5-1.3:1; terminal sheath (3.3) 7-20 cm long, margins open 4/5 or more their length; sterile shoots all or most flowering within a season, next year's shoots set late in the growing season, breaking through sheath bases with indistinct two-keeled buds protecting the scales; shoots arising inside sheaths frequently present; basal leaves bladeless; blades 1.5-8 mm wide, mostly flat, often lax; ligules (1) 1.5-6 mm long, the tips rounded to sharp-pointed, frequently jagged, the backs sparsely to distinctly rough.

Flowers: Inflorescence a lax panicle, (10) 15-30 (40) cm long, sparse to moderately congested, eventually open, highly branched with many spikelets, the branches 2 to 9 per node, initially appressed, eventually widely spreading to slightly reflexed, distinctly rough on angles, the stalks shortly exserted; spikelets laterally compressed, 3-5 mm long, (1-) 2- to 5-flowered; lower glumes 3-nerved; rachilla internodes mostly less than 1 mm long, smooth, minutely bumpy, or sparsely short straight-hairy, not silky or minutely soft-hairy; lemmas lanceolate, 2-3 mm long, the tips usually bronze-coloured in part, sharp-pointed, the keels and marginal nerves short silky-hairy, hairless between the nerves, the tips frequently incurved and blunt; calluses sparsely to moderately densely cobwebby; palea keels rough; flowers bisexual; anthers 1.3-1.8 mm long.

***Poa paucispicula* Scribn. & Merr.** (*P. leptocoma* ssp. *paucispicula* [Scribn. & Merr.] Tzvelev, *P. merrilliana* A.S. Hitchc., *P. glacialis* Scribn. & Merr.)

few-flowered bluegrass

HABITAT/RANGE:

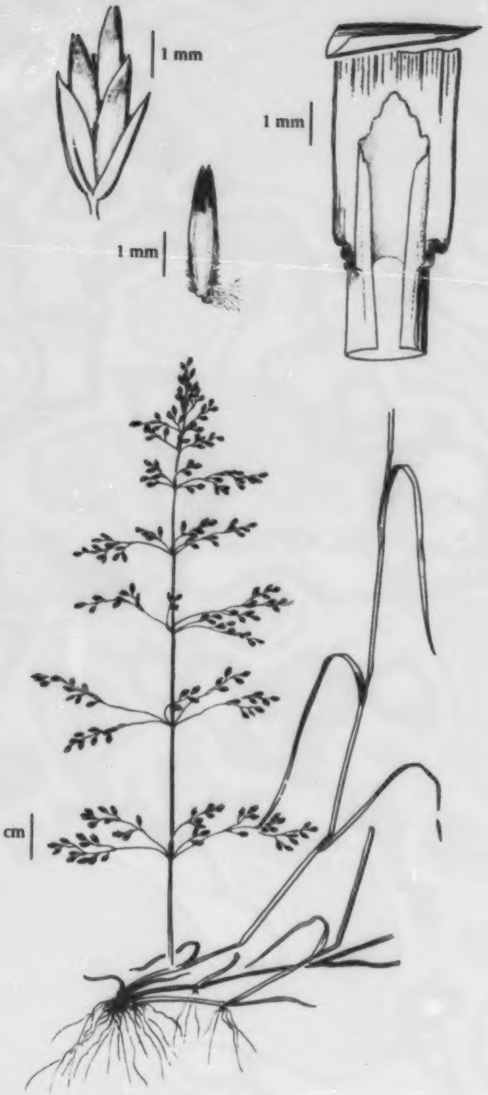
Mesic to moist fellfields, snowbeds and meadows in the alpine zone; frequent throughout BC; amphiberingian, N to AK, YK and NT, E to AB and S to MT and N WA; Asia.

DESCRIPTION:

General: Perennial tufted grass from fibrous roots; stems 10-30 cm tall.

Leaves: Sheath margins open 2/5-3/4 their length; blades 1-3 mm wide, flat, thin; ligules 1-2 mm long, the tips blunt to rounded, the backs smooth.

Flowers: Inflorescence a lax to nearly erect panicle, 2.5-10 cm long, sparse, open, the branches 1 to 2 per node, spreading to reflexed, hairlike, smooth; spikelets laterally compressed, 4-6 mm long, 3- to 5-flowered; glumes lanceolate to broadly lanceolate, thin, the lower ones 1-nerved; rachillas smooth, hairless; lemmas broadly lanceolate, 3-4 mm long, the tips sharp-pointed, usually purple-coloured, surface smooth, keel and marginal nerves silky-hairy, between nerves hairless; calluses sparsely cobwebby; palea keels smooth to rough; flowers bisexual; anthers 0.4-1 mm long.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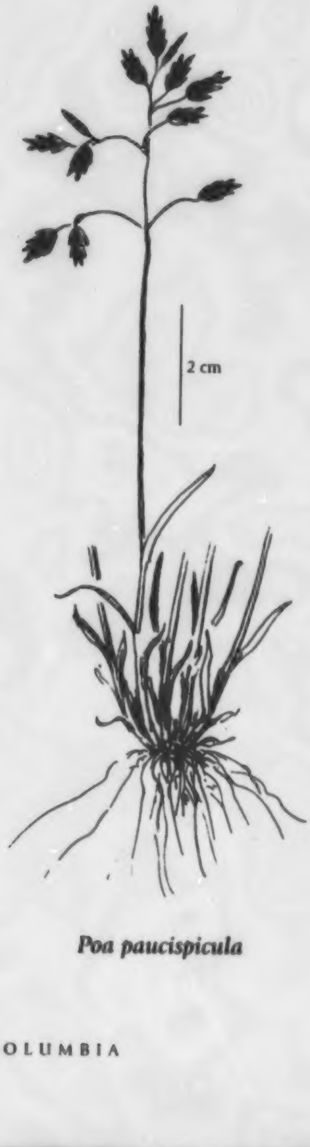
Poa palustris



Poa paucispicula

Poa pratensis **L.** (*P. agassizensis* B. Boivin & D. Löve = ssp. *agassizensis; P. pratensis* var. *alpigena* Fr. *ex* Blytt, *P pratensis* var. *iantha* Laest. *nom. illeg. superfl.*, *P. alpigena* Fr. *ex* Blytt *ex* Lindm. = ssp. *alpigena; P. angustifolia* L. = ssp. *angustifolia; P. stricta* ssp. *colpodea* Th. Fr. = ssp. *colpodea; Poa irrigata* Lindm. *nom. illeg.*, *P. subcaerulea* Sm., *P. pratensis* ssp. *subcaerulea* [Sm.] Hiitonen, *P. humilis* Ehrhart *ex* Hoffm., *P. rigens* R.Br. = ssp. *irrigata*)

Kentucky bluegrass

HABITAT/RANGE:

Moist to dry meadows, shrublands, open forests and disturbed sites in all vegetation zones; infrequent to common throughout BC; introduced from Eurasia as a lawn and pasture grass (ssp. *pratensis*, ssp. *irrigata* and ssp. *angustifolia*) or native in Canada and the W U.S. (ssp. *agassizensis*, ssp. *alpigena*, and ssp. *colpodea*).

DESCRIPTION:

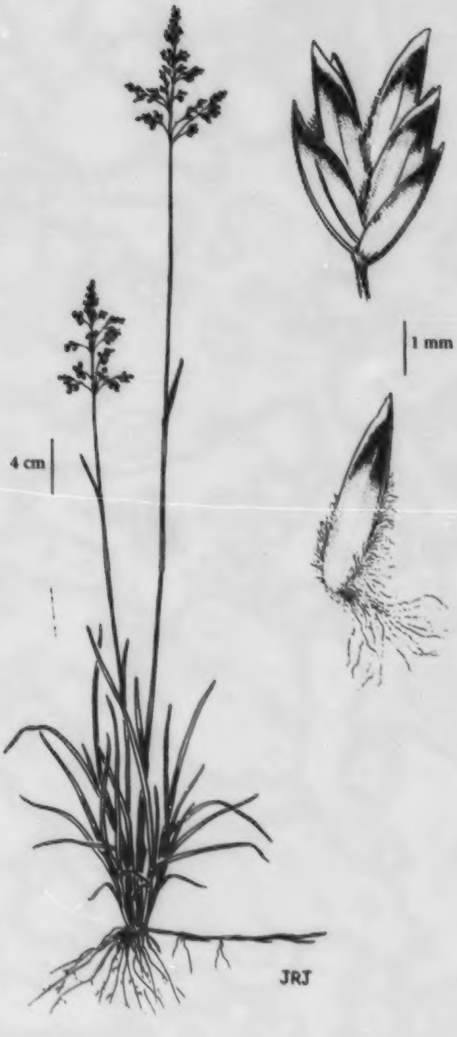
General: Perennial, densely to loosely tufted grass from fibrous roots and rhizomes or sometimes isolated shoots; stems erect or decumbent, 30-70 (100) cm tall/long, lowermost nodes usually not exserted.

Leaves: Sheaths hairless or infrequently sparsely to moderately hairy, margins open 1/2-3/4 their length; sterile shoots breaking through sheath bases and emerging inside sheaths; basal bladeless leaves present; blades 0.4-4.5 mm wide, flat or folded, infrequently in-rolled, lax to moderately firm, upper surface sometimes with sparse soft straight hairs; ligules 1-2 (3) mm long, the tips blunt to rounded, the margins slightly rough or smooth towards the tips, the backs smooth or slightly rough.

Flowers: Inflorescence a panicle, 3-15 (18) cm long, narrowly egg-shaped to narrowly or broadly pyramidal, loosely congested to open, the branches 1 to 7 (9) per node, round, smooth or rough, spikelets usually crowded in terminal 1/2; spikelets laterally compressed, 4-7 mm long, 2- to 5-flowered; glumes distinctly keeled, the keels smooth to moderately rough, the lower glumes usually narrowly lanceolate, 3-nerved, the upper glumes distinctly shorter to nearly equalling the lower lemmas; rachilla internodes mostly less than 1 mm long, smooth, hairless; lemmas lanceolate, 2-4.3 (6) mm long, the tips sharp-pointed, surface membranous, smooth or minutely bumpy, the keels and marginal nerves long silky-hairy (lateral nerves infrequently minutely soft-hairy to short silky-hairy), hairless between the nerves, lateral nerves prominent; calluses copiously cobwebby; palea keels rough, medially some paleas short silky-hairy, hairless between the keels (or rarely sparsely short straight-hairy); flowers bisexual, infrequently bulbiferous; anthers infrequently aborted late in development or 1.2-2 mm long.

Notes: At least 6 subtly distinct facultatively apomictic subspecies occur in BC. These are extremely difficult to distinguish in North America. A hybrid, *P. secunda* ssp. *juncifolia* x *P. pratensis* (*P.* x *limosa* Scribn. & Williams [*P.* x *fibrata* Swallen]), is rare in alkaline meadows of SC BC:

1. Flowers forming bulbils, panicles more or less linear, native in the subalpine and alpine zones of NW BC .... ssp. *colpodea* (Th. Fries) Tzvelev
1. Flowers usually not forming bulbils, panicles broader.
    2. Plants usually less than 25 cm tall, somewhat covered with a bluish coating; panicle branches arising from lower nodes in groups of 1 or 2 (3); introduced in coastal BC .... ssp. *irrigata* H. Lindm.
    2. Plants 20-100 cm tall, the larger plants without a bluish coating; panicle branches arising from lower nodes in groups of 3 to 5; ranges various.
        3. Blades of the vegetative shoots in-rolled, less than 0.7 mm wide, elongated, 10-40 cm long, distinctly narrower than those of the flowering shoots; panicle branches smooth or sparsely rough; sporadically introduced in SW BC .... ssp. *angustifolia* (L.) Lej.
        3. Blades of the sterile shoots flat or folded and in-rolled on the margins, mostly more than 0.8 mm wide, not differentiated from those of the flowering shoots in form; panicle branches smooth or rough.
            4. Panicles 3-6 cm long, contracted at maturity, blades of sterile shoots 3-15 cm long, firm, folded and in-rolled on the margins, often sparsely soft-hairy above (also present in ssp. *angustifolia*); native of semiarid grasslands and forests in SE BC .... ssp. *agassizensis* (Boivin & D. Löve) Taylor & MacBryde
            4. Panicles 4-15 cm long, open at maturity, blades flat or folded, mostly smooth above.
                5. Spikelets lanceolate, strongly purple-coloured; lemmas long-hairy on the intermediate nerves or smooth; paleas rough or long-hairy on the lower portion of the keels; panicles narrowly pyramidal, the branches smooth; leaf blades of the vegetative shoots folded; subalpine and alpine plants of N BC .... ssp. *alpigena* (Lindm.) Hitt.
                5. Spikelets broadly lanceolate to egg-shaped, green or somewhat purplish; lemmas smooth, hairless between the keels and marginal nerves; paleas rough on the keels; panicles pyramidal, the branches minutely rough; leaf blades of the vegetative shoots flat or folded; widely introduced in BC .... ssp. *pratensis*



Poa pratensis ssp. *pratensis*

Poa pseudoabbreviata **Rosh.** (*Poa brachyanthera* Hult.)

polar bluegrass

HABITAT/RANGE:

Dry, open ridges in the subalpine and alpine zones; rare in NW BC, known only from Horseranch Range and Tkope River, Haines Triangle; N to AK, YT and NT.

DESCRIPTION:

General: Perennial, densely tufted grass from fibrous roots; stems 4-20 (30) cm tall.

Leaves: Sheath margins open 5/6-9/10 their length; blades 0.5-2 mm wide, glaucous, flat or folded, thin; ligules 1-4 mm long, the backs smooth.

Flowers: Inflorescence an erect panicle, 2-7 cm long, sparse, pyramidal, open, exserted from upper sheaths, about as wide as long, the branches spreading, slender, 1.5-5 cm long, slightly to moderately rough on angles; spikelets laterally compressed, usually strongly purplish, 3-5 mm long, shorter than the stalks, 2- to 4-flowered; lower glumes 3-nerved, the upper glumes frequently exceeding the lower lemmas; rachilla internodes less than 1 mm long, smooth to rough; lemmas lanceolate, 2-3 mm long, the tips sharp-pointed, thinly membranous, the keels and marginal nerves short crisp- to silky-hairy, hairless between the nerves; calluses hairless; palea keels rough; flowers bisexual; anthers 0.2-0.7 mm long.

Poa secunda **J. Presl** (*Poa canbyi* [Scribn.] Howell, *P. gracillima* Vasey, *P. incurva* Scribn., *P. sandbergii* Vasey, *P. scabrella* [Thurb.] Benth. ex Vasey = ssp. *secunda*; *P. ampla* Merr., *P. juncifolia* Scribn., *P. nevadensis* Vasey = ssp. *juncifolia*)

Nevada bluegrass (ssp. *juncifolia*); **Sandberg's bluegrass** (ssp. *secunda*)

HABITAT/RANGE:

Dry to moist meadows and grasslands from the steppe to lower alpine zones; ssp. *juncifolia* – common in saline to alkaline meadows and grasslands to rich meadows in the steppe and montane zones; ssp. *secunda* – common on well-drained meadows and grasslands in the steppe and montane zones; N to extreme S AK, YT and NT, E to NF and S to MX, MI, MN, OK, NM, AZ and CA

DESCRIPTION:

General: Perennial, more or less densely tufted grass from fibrous roots; stems 15-120 cm tall.

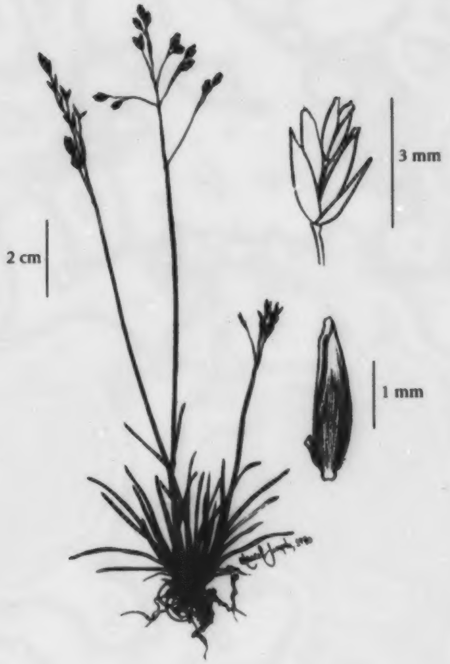
Leaves: Sheath margins open 3/4-9/10 their length; sterile shoots emerging inside sheaths and breaking through the sheath bases; blades 0.4-3 (5) mm wide, often glaucous (ssp. *juncifolia*), flat, folded, or in-rolled, thin or thick, smooth or rough; ligules 0.5-10 mm long, the tips blunt to long-pointed, the backs smooth or rough.

Flowers: Inflorescence an erect, somewhat lax panicle, 2-25 cm long, usually moderately green or purplish, narrowly lanceolate to egg-shaped, congested, more or less open in flower and contracted at maturity, infrequently permanently open, some glaucous, the branches usually 1 to 3 per node, usually appressed or ascending, usually sparsely to distinctly rough on and between weakly developed angles, with spikelets in the terminal 1/2; spikelets weakly laterally compressed to nearly round, usually narrowly lanceolate, green or strongly purplish, 4-8 mm long, some glaucous, (2-) 3- to 10-flowered; glumes broadly lanceolate, the keels indistinct, the lower glumes 3-nerved; rachilla internodes usually exceeding 1 mm long, smooth or rough; lemmas lanceolate to narrowly lanceolate or slightly oblanceolate, weakly keeled, 3.5-5 mm long, the tips rounded to broadly sharp-pointed (with broad thin margins), hairless or minutely soft- to short silky-hairy on the keels and marginal nerves, hairless or hairy between the nerves; calluses hairless or with a crown of hairs up to 0.5 (2) mm long; palea keels rough, medially some minutely soft- or short silky-hairy; flowers bisexual; anthers 1.5-3 mm long.

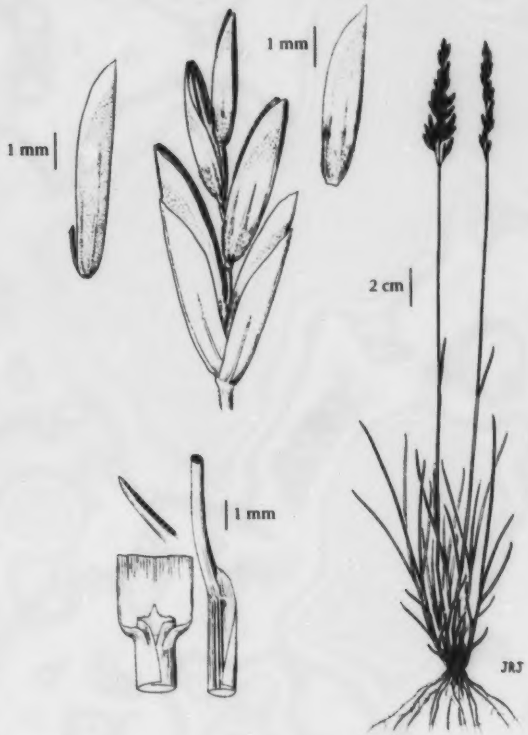
Notes: Two variable, facultatively apomictic subspecies occur in BC:

1. Lemmas smooth or minutely rough, at most crisp short-hairy on the nerves near the base; palea nerves rough; ligules all less than 2 mm long, squared-off to rounded, firm, rough on the backs .... ssp. *juncifolia* (Scribn.) Soreng

1. Lemmas more or less short-hairy to silky-hairy on the nerves and between them, rarely smooth between the nerves; palea mostly silky-hairy on the nerves below and between them; ligules of at least the upper stem leaves more than 2 mm long, sharp-pointed to long-pointed, smooth or rough ....ssp. *secunda*



Poa pseudoabbreviata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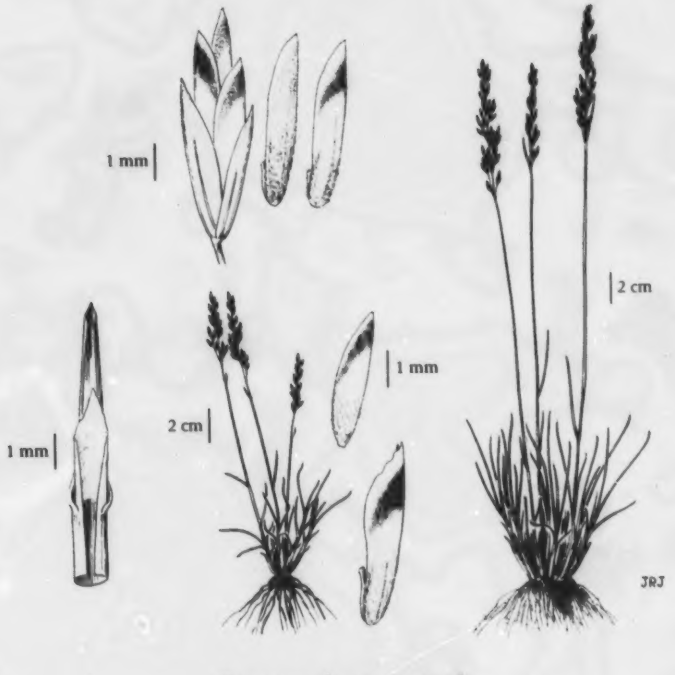
Poa secunda ssp. *juncifolia*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Poa secunda ssp. *secunda*

Poa stenantha* Trin. var. *stenantha

narrow-flowered bluegrass

HABITAT/RANGE:

Moist to mesic meadows, cliffs, ravines and forest openings in the lowland to alpine zones; common in W and S BC; amphiberingian, N to AK and NT, E to AB and S to CO UT, ID and OR; E Asia.

DESCRIPTION:

General: Perennial, densely to loosely tufted grass from fibrous roots; stems 20-60 cm tall.

Leaves: Sheath margins open 4/5-9/10 their length; sterile shoots emerging inside sheaths and breaking through sheath bases; blades 1.5-4 mm wide, flat or folded, lax; ligules 2-3.5 mm long, the backs smooth.

Flowers: Inflorescence a lax panicle, 5-15 cm long, sparse, loosely contracted to open, the branches mostly 2 per node, rough on angles; spikelets laterally compressed, 6-10 mm long, 3- to 7-flowered; glumes broadly lanceolate, the lower glumes 3-nerved; rachillas smooth; lemmas lanceolate, distinctly compressed, distinctly keeled, 4-6 mm long, the tips sharp-pointed, the keels and marginal nerves, and some lateral nerves, long silky-hairy, hairless or more or less short-hairy between the nerves; calluses hairless or with a crown of wavy hairs up to 2 mm long around the base; palea keels rough, medially some of these minutely soft-hairy; flowers bisexual; anthers developed or not, 1.2-2 mm long.

***Poa trivialis* L.**

rough bluegrass

HABITAT/RANGE:

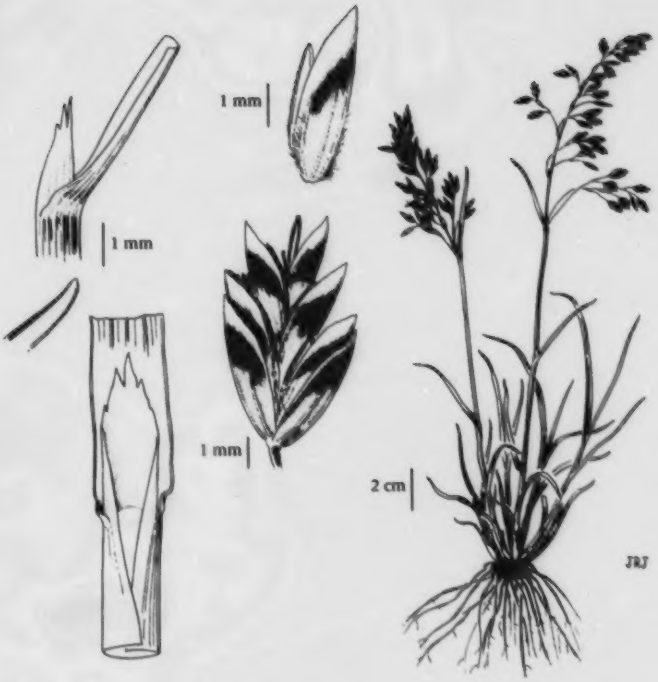
Moist disturbed sites in the lowland zone, infrequent in SW BC and the Queen Charlotte Islands; introduced from Eurasia.

DESCRIPTION:

General: Perennial, loosely to densely tufted grass from fibrous roots, short-lived, sometimes stoloniferous; stems 25-120 cm tall.

Leaves: Sheaths compressed, rough, margins open about 1/2-3/4 their length; sterile shoots sometimes trailing and rooting at nodes; blades 1-5 mm wide, flat, lax, not prow-tipped; ligules 3-10 mm long, the tips sharp-pointed to long-pointed, the backs rough.

Flowers: Inflorescence an erect or lax panicle, 8-25 cm long, pyramidal, open, the branches 3 to 7 per node, spreading, distinctly rough angled, crowded; spikelets laterally compressed, 2.3-3.5 mm long, 2- to 4-flowered; lower glumes often sickle-shaped, 1-nerved; rachillas smooth or minutely bumpy; lemmas lanceolate, 2.3-3.5 mm long, the tips sharp-pointed, the surface smooth or rough, the keels and rarely the marginal nerves short silky-hairy below, lateral nerves prominent; calluses cobwebby; palea keels smooth, minutely bumpy, or slightly rough; flowers bisexual; anthers 1.3-2 mm long.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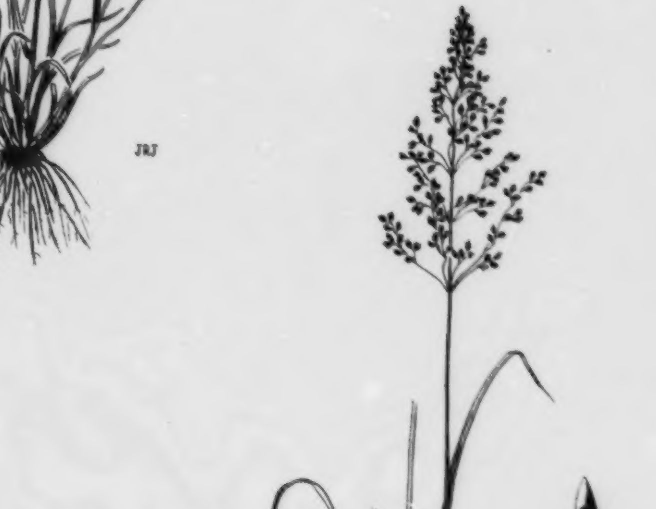
Poa stenantha var. *stenantha*



Poa trivialis

Poa wheeleri **Vasey** (*Poa nervosa* var. *wheeleri* [Vasey] C.L. Hitchc.)

Wheeler's bluegrass

HABITAT/RANGE:

Mesic meadows and open forests in the montane and subalpine zones; locally frequent E of the Coast-Cascade Mountains N to 57° N; E to MB and S to NM, UT, NV and CA.

DESCRIPTION:

General: Perennial, loosely to densely tufted grass from fibrous roots and short rhizomes or with isolated shoots; stems 35-80 cm tall.

Leaves: Sheaths round, margins open 1/4-2/3 their length, those of at least some lowermost leaves densely rough or hairy, the projections or hairs pointing downwards; collars of lowermost leaves hairless or with hairs of the same length and kind as on sheaths; blades of sterile shoots folded or in-rolled, infrequently flat, inner surface usually distinctly rough to minutely soft-hairy on and between nerves, of stem leaves 2-3.5 mm wide (the uppermost at least 1/4 as long as its sheath), flat or folded, inner surface indistinctly rough; **ligules** 0.5-2 mm long, thickened, the tips pointed to blunt, those of the lowermost leaves with the backs distinctly rough or minutely soft-hairy.

Flowers: Inflorescence an erect or nodding panicle, 5-12 (18) cm long, egg-shaped to pyramidal, loosely contracted to open, lowermost internodes mostly less than 3.5 cm long, the branches 2 to 5 per node, ascending to spreading or reflexed, slightly to moderately rough; spikelets laterally compressed, 5.5-10 mm long, 2- to 7-flowered; glumes 1/4-2/3 (3/4) as long as the adjacent lemmas, the lower 1- to 3-nerved; rachillas smooth or rough, hairless or sparsely short straight-hairy; lemmas lanceolate, 3-6 mm long, the tips sharp-pointed, the surface hairless or rough, the keels and marginal nerves hairless or sparsely short silky-hairy, hairless or short straight-hairy or infrequently minutely soft-hairy between the nerves, lateral nerves obscure or moderately prominent; calluses hairless; palea keels rough; flowers female (rarely bisexual); anthers usually non-functional or aborted late in development and up to 2 mm long.

POLYPOGON

Polypogon monspeliensis **(L.) Desf.**

rabbitfoot polypogon

HABITAT/RANGE:

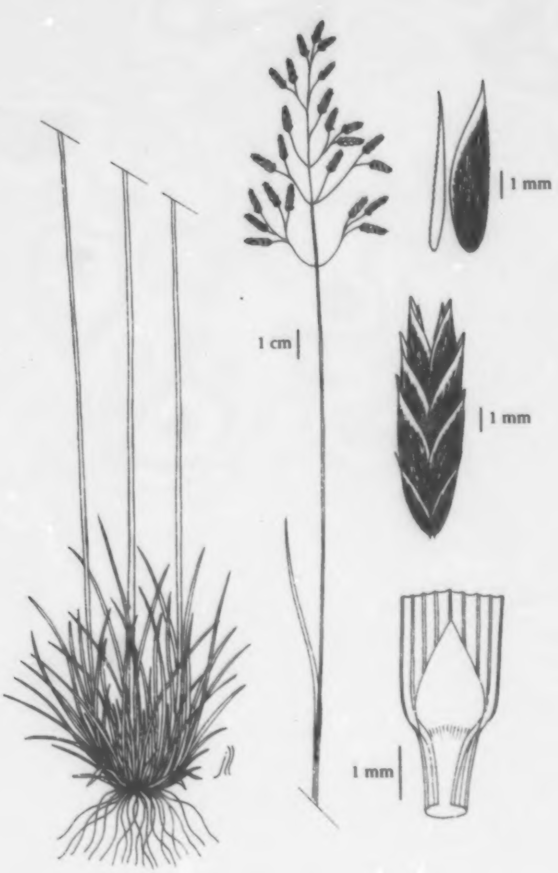
Wet to dry waste areas, ditches and vernal pools in the lowland zone; infrequent in S BC; introduced from Europe.

DESCRIPTION:

General: Annual, tufted grass from fibrous roots; stems often decumbent and freely rooting below (especially in standing water), 50-70 cm tall.

Leaves: Sheaths open; blades usually flat, rough, (1) 4-7 (12) mm wide; ligules strongly short rough-hairy externally, (2) 3-10 (12) mm long, narrowed to blunt or squared-off, irregularly jagged.

Flowers: Inflorescence a dense, spikelike panicle, (1) 2-15 cm long; glumes rough, tawny in age, 2-3.5 mm long, awned from between very short rounded lobes, the awns 6-10 mm long; lemmas 1, smooth and shining, about half as long as the glumes, minutely toothed at the rounded tips, awned, the awns slender, exceeding the glumes by as much as 1.5 mm; paleas nearly equal to the lemmas; lodicules lanceolate, about 0.2 mm long; anthers about 0.5 mm long.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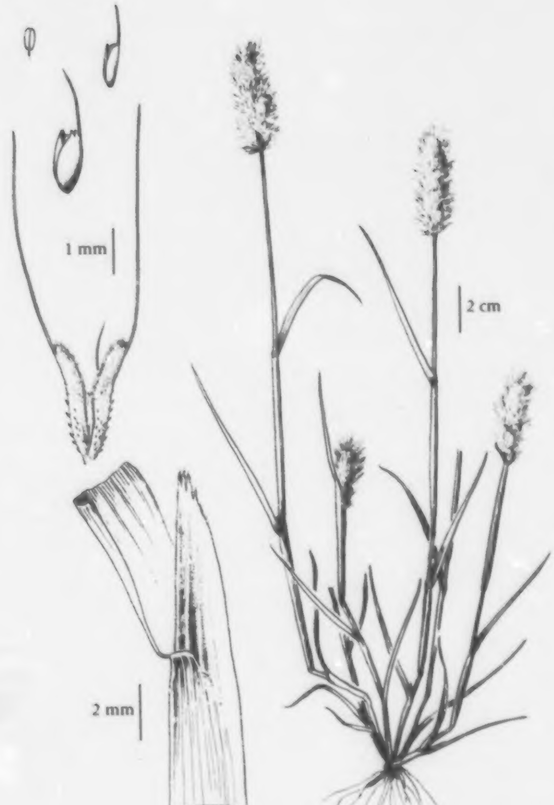
Poa wheeleri



Polypogon monspeliensis

PSEUDOROEGNERIA

***Pseudoroegneria spicata* (Pursh) A. Löve** (*Agropyron spicatum* [Pursh] Scribn. & J.G. Sm., *A. spicatum* var. *inerme* [Scribn. & J.G. Sm.] Heller, *Elymus spicatus* [Pursh] Gould)

bluebunch wheatgrass

HABITAT/RANGE:

Dry, open grasslands, shrublands, rocky slopes and forest openings in the steppe and montane zones; common in SC and SE BC, rare elsewhere in BC; N to AK and YT, E to MB and S to TX, NM, AZ and NE CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots, often forming clumps up to 150 cm wide; stems 60-130 cm tall, erect, slender, green or glaucous.

Leaves: Mostly stem leaves; sheaths usually smooth or minutely hairy, the hairs pointed downward; blades 1-4 mm wide, flat to loosely in-rolled, usually smooth below, short-hairy above, rarely hairy on both surfaces; ear-shaped lobes at the leaf-bases well-developed; ligules scarcely 1 mm long, minutely ragged and fringed.

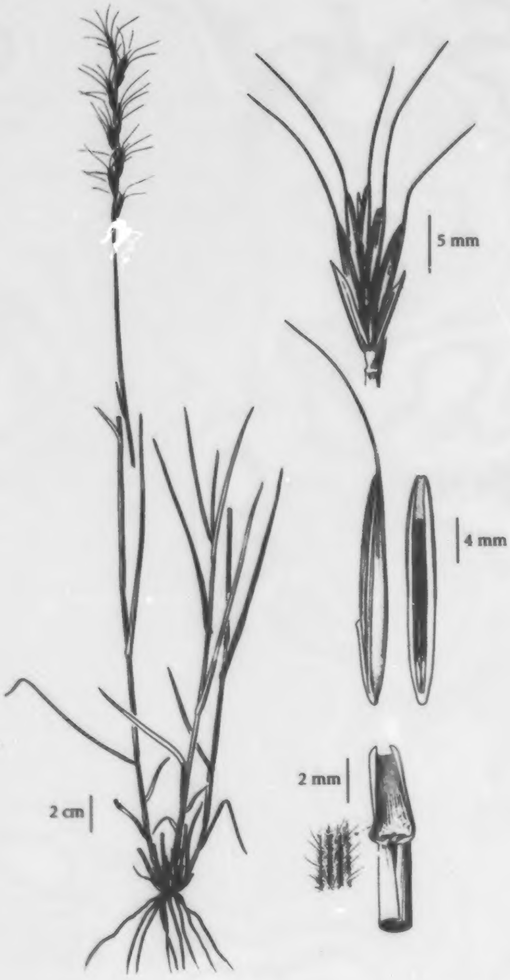
Flowers: Inflorescence a spike, 8-16 mm long, middle internodes 0.8-2.5 cm apart; spikelets 5- to 8-flowered, mostly 1 spikelet per node; glumes 6-15 mm long, 0.9-2.2 mm wide, nerves evenly smooth or rough; lemmas 10-14 mm long, nerved, awned or unawned, the awns 0-20 mm long.

Notes: Awned and unawned specimens differ by a single gene, a difference that some taxonomists (Barkworth 1994) feel does not merit separate taxonomic recognition. Most BC plants are unawned. A key to the two forms follows:

1. Lemmas awned, 10-20 mm long, widely divergent .... ssp. *spicata*
1. Lemmas unawned or nearly so, 0-2 mm long, straight .... ssp. *inermis* (Scribn. & J.G. Sm.) A. Löve

PUCCINELLIA

1. Lemma margins entire throughout; spikelet stalks smooth or nearly smooth and bearing a few scattered projections .... *P. pumila*
1. Lemma margins entire below, roughly sharp-toothed near the tips; spikelet stalks usually uniformly rough, occasionally nearly smooth and bearing a few scattered projections (especially in *P. nutkaensis*).
    2. Lemma tips broadly rounded to blunt and jagged, the lower lemmas less than 2 mm long; lower branches of fruiting inflorescences usually descending, occasionally spreading .... *P. distans*
    2. Lemma tips sharp-pointed to broadly rounded, the lower lemmas 2 mm long or longer; lower branches of fruiting inflorescences erect to spreading.
        3. Lower branches of fruiting inflorescences usually erect to ascending, occasionally spreading, smooth or sometimes slightly rough .... *P. nutkaensis*
        3. Lower branches of fruiting inflorescences ascending to spreading, sometimes reflexed, rough .... *P. nuttalliana*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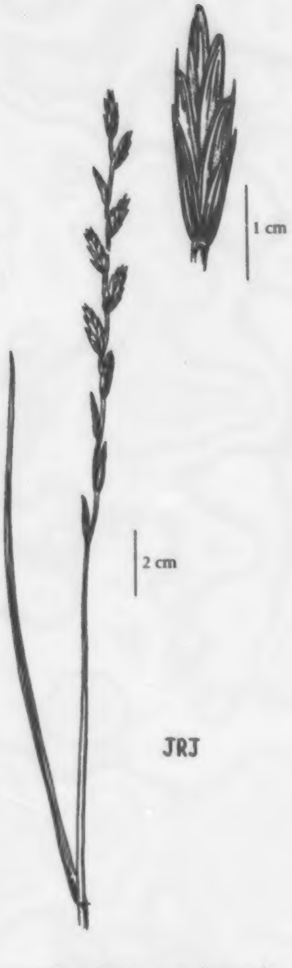
Pseudoroegneria spicata ssp. *spicata*



Pseudoroegneria spicata ssp. *inermis*

Puccinellia distans **(Jacq.) Parl.**

weeping alkaligrass; European alkaligrass

HABITAT/RANGE:

Saline or alkaline flats, lakeshores, coastal strands and disturbed sites in the lowland, steppe and montane zones; frequent throughout BC east of the Coast-Cascade Mountains, rare westward in BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 10-40 (50) cm tall.

Leaves: Sheaths open; blades flat to somewhat in-rolled, 1.5-3.5 mm wide; ligules entire, rounded, about 1 mm long.

Flowers: Inflorescence an ultimately open panicle, 5-15 cm long, the branches rough, spreading to reflexed, the lower branches of fruiting inflorescences usually descending, occasionally spreading; spikelets (3-) 5- to 6-flowered, the spikelet stalks usually uniformly rough; glumes egg-shaped, usually minutely more or less fringed with fine hairs, the lower ones barely 1 mm long, the upper ones (1.5) 2 mm long; lemmas broadly egg-shaped, the margins entire below, roughly sharp-toothed near the tips, often more or less fringed with fine hairs, sparsely hairy near the base, (1.4) 1.6-1.8 (2) mm long, broadly rounded to blunt and jagged at the tips; paleas usually equalling or slightly exceeding the lemmas; lodicules barely 0.5 mm long; anthers 0.5-0.8 mm long.

Notes: Generally recognized as introduced but some populations with branches of the fruiting inflorescence nondescending, including some in BC, are possibly intergradational with *P. nuttalliana*, and may be native.

Puccinellia nutkaensis **(J.S. Presl) Fern. & Weath.** (*P. grandis* Swallen, *P. lucida* Fern. & Weath.)

Pacific alkaligrass; Alaska alkaligrass

HABITAT/RANGE:

Beaches, tidal flats and marshes in the lowland zone; frequent in coastal BC; N to AK, E disjunctly to PQ and S to CA.

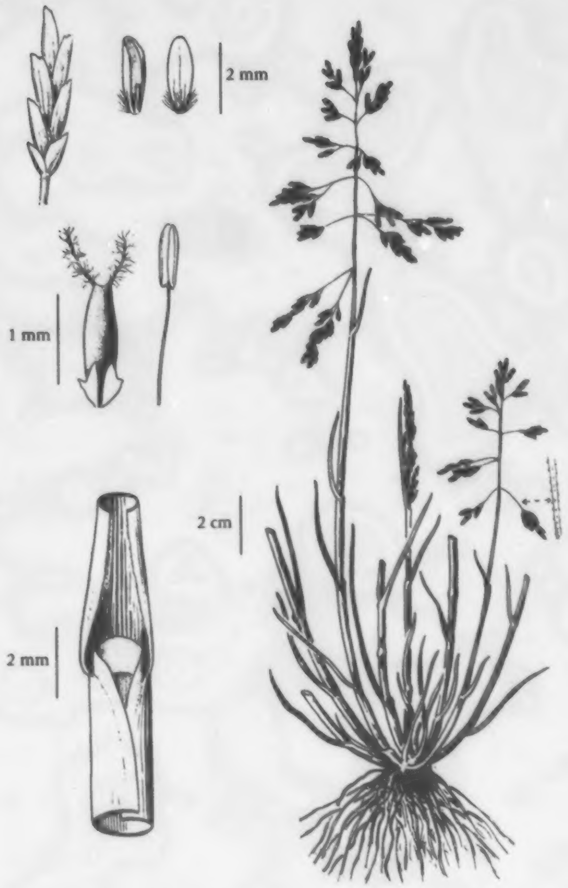
DESCRIPTION:

General: Perennial grass from fibrous roots, often more or less from stolons; stems 20-60 cm tall.

Leaves: Sheaths open; blades lax, flat to somewhat in-rolled, 1-2 mm wide; ligules rounded, (1) 1.5-3.5 mm long.

Flowers: Inflorescence a narrow panicle, (5) 8-15 cm long, the branches smooth or sometimes slightly rough, mostly erect, mostly only 1-3 cm long, the lower branches of the fruiting inflorescences usually erect to ascending, occasionally spreading; spikelets (4-) 5- to 6- (7-) flowered, spikelet stalks usually uniformly rough, occasionally nearly smooth and bearing a few scattered projections; florets apparently closed, self-fertile; glumes broad, usually one or both slightly jagged or more or less fringed with fine hairs toward the tips, the lower ones about 1.5 mm long, the upper ones mostly 2.2-2.5 mm long; rachilla joints slightly over 1 mm long; lemmas narrowed abruptly, entire below, more or less fringed with fine hairs to jagged or even lobed above, sparsely short-hairy near the base, 3-3.6 mm long, lemma tips sharp-pointed to broadly rounded, paleas nearly equal to the lemmas; lodicules 0.5-1 mm long; anthers 0.7-1.2 mm long, usually partially exserted.

Notes: *Puccinellia nutkaensis* is sometimes barely distinct from *P. nuttalliana*, and like other named entities may represent an ecological race of the latter species. Larger plants in E and W North America have been recognized as *P. lucida*, but they are not consistently differentiable from *P. nutkaensis*.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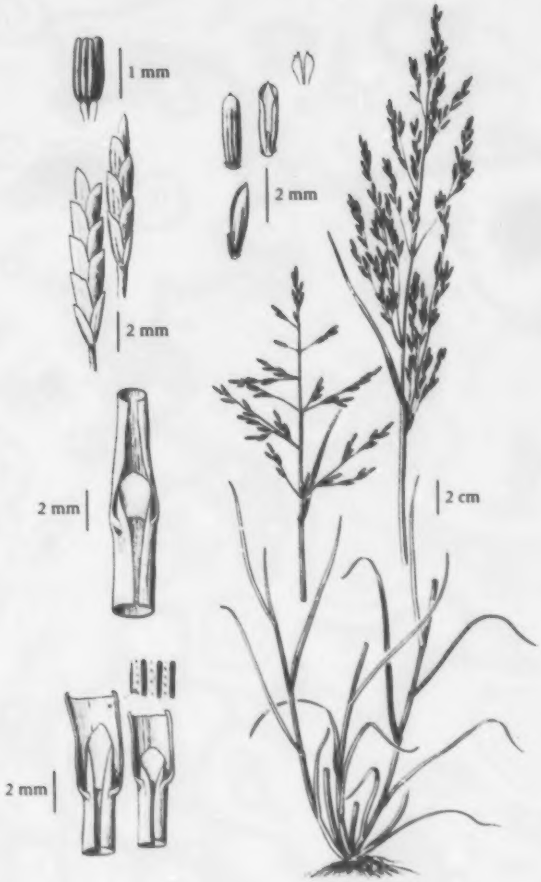
Puccinellia distans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Puccinellia nutkaensis

Puccinellia nuttalliana **(J.A. Schult.) A.S. Hitchc.** (*P. airoides* [Nutt.] S. Wats. & J. Coult., *P. agrostidea* T. Sorensen, *P. borealis* Swallen, *P. deschampsioides* T. Sorensen, *P. interior* T. Sorensen)

Nuttall's alkaligrass

HABITAT/RANGE:

Moist to wet (sometimes ephemeral), usually saline or alkaline meadows, ditches and shorelines in the lowland, steppe and montane zones; frequent in BC east of the Coast-Cascade Mountains, rare in coastal BC; N to AK, YT and NT, E to PQ and NB and S to ME, VT, WI, MN, NE, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems (30) 40-80 (100) cm tall.

Leaves: Sheaths open; blades becoming in-rolled, 1-2.5 (3) mm wide; ligules rounded to pointed, usually sparsely short-hairy and rough externally, 1-3 mm long.

Flowers: Inflorescence a narrow panicle, 6-20 cm long, the branches rough, ultimately spreading (ascending), the lower branches of fruiting inflorescences ascending to spreading, sometimes reflexed; spikelets (3-) 4- to 7-flowered, the stalks usually uniformly rough; glumes sparsely more or less fringed with fine hairs toward the tips, the lower ones about 1.3-2 mm long, the upper ones mostly 1.5-2.5 mm long; rachilla joints slightly over 1 mm long; lemmas sparsely short-hairy near the base, (2) 2.5-3.2 mm long, abruptly narrowed to rounded tips that are slightly more or less fringed with fine hairs, the margins entire below, roughly sharp-toothed near the tips, paleas nearly equal to the lemmas; lodicules about 0.5 mm long; anthers 0.7-1 (1.2) mm long.

Notes: Many variants have been recognized in this complex on the basis of anther length, inflorescence branching pattern and other characters, but additional research is required before recognition of additional species is justified. The variant forms appear to be merely weakly differentiated races connected to one another through intermediate forms.

Puccinellia pumila **(Vasey) A. S. Hitchc.**

dwarf alkaligrass

HABITAT/RANGE:

Coastal beaches and marshes in the lowland zone; frequent in coastal BC; N to AK and S to CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems 10-30 cm tall.

Leaves: Sheaths open, smooth; blades flat to in-rolled, 1-2.5 mm wide; ligules rounded, usually sparsely short-hairy or rough externally, 0.8-2 mm long.

Flowers: Inflorescence a narrow panicle, (3) 5-10 cm long, the branches few, smooth, nearly erect (rarely deflexed); spikelets 4 to 5- (6-) flowered; lower glumes about 1.5-2 mm long, the upper ones mostly 2.5 (3) mm long; rachilla joints about 1 mm long; lemmas sparsely hairy (with only a few short hairs) at the extreme base, abruptly narrowed above, about 3 (3.5) mm long; paleas nearly equal to the lemmas; lodicules barely 1 mm long; anthers (0.7) 1 (1.2) mm long.

SCHIZACHNE[21]

Schizachne purpurascens **(Torr.) Swallen**

false melic

HABITAT/RANGE:

Moist to mesic open forests, forest margins and rocky slopes in the montane zone; infrequent in SC, SE and C BC, rare northward; circumpolar, N to SE AK, YT, NT, E to NF and S to ME, MA, PA, VA, KT, IL, IA, NE, NM and UT; W and C Asia.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots; stems erect, to about 100 cm tall.

Leaves: Sheaths closed almost to the tops; blades 2-4 (5) mm wide, folded or loosely in-rolled, usually smooth; ligules 0.5-1.5 mm long.

Flowers: Inflorescence a zig-zagged or loosely erect panicle 7-13 (17) cm long; spikelets 11.5-17 mm long, 3- to 6-flowered; glumes pointed, membranous, smooth, the lower 4.2-6.2 mm long, the upper 6-8.5 (9) mm long; lemmas (8) 8.5-10.5 (12) mm long, with 7 to 9 prominent nerves, tips bidentate, awned, the awns arising below the tips, as long or longer than the lemma bodies, twisted and spreading or slightly abruptly bent, the calluses stiff-hairy; anthers 1.4-2.0 mm long.

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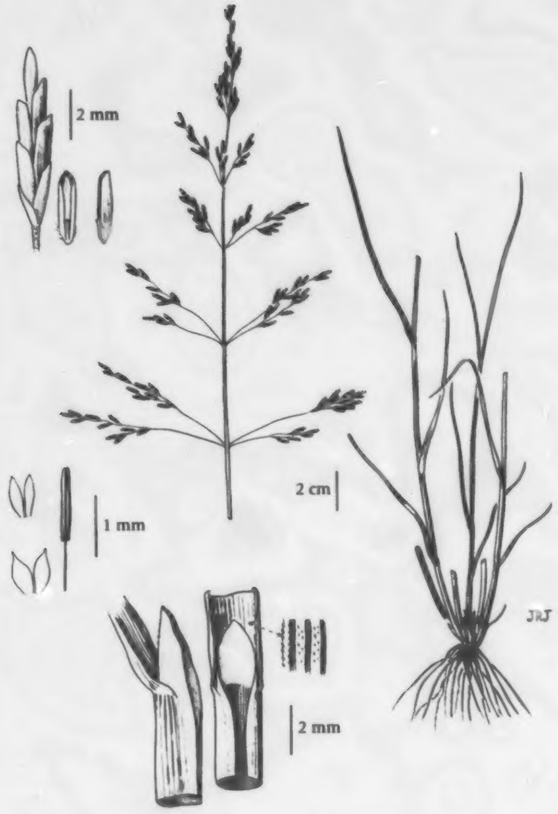
[21] Contributed by S.J. Darbyshire.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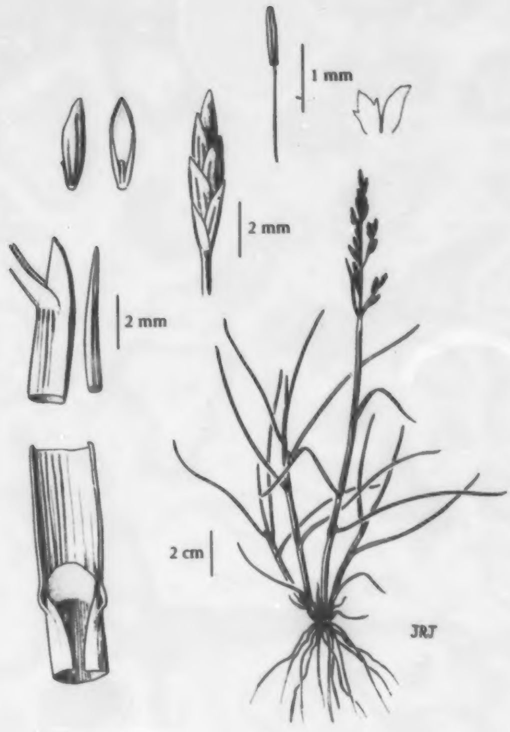
Puccinellia nuttalliana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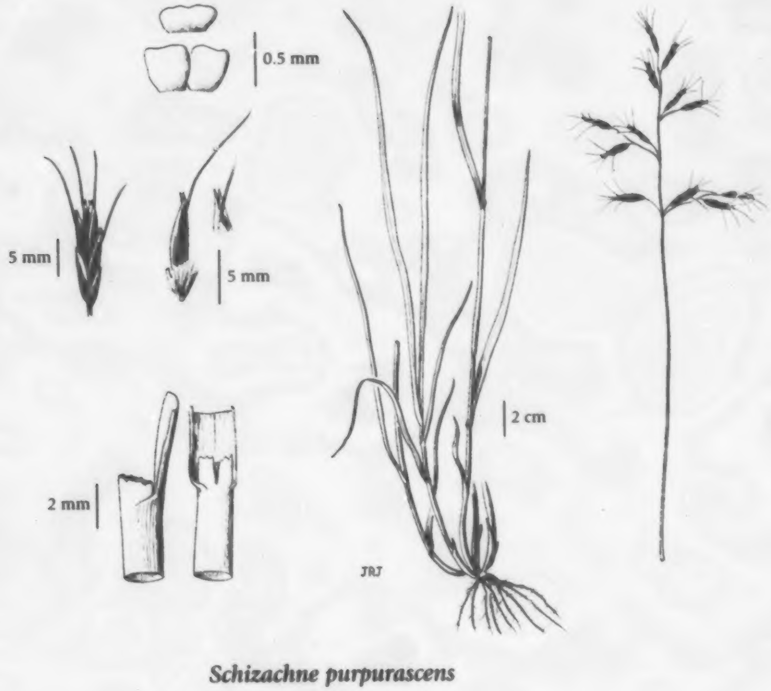
Puccinellia pumila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Schizachne purpurascens

SCHIZACHYRIUM

Schizachyrium scoparium **(Michx.) Nash** (*Andropogon scoparius* Michx.)

little bluestem

HABITAT/RANGE:

Mesic to dry slopes in the steppe and lower montane zones; rare in SE BC; E to NS and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from short rhizomes, clump-forming; stems grooved above the nodes, (50) 80-100 (150) cm tall.

Leaves: Sheaths strongly keeled, usually smooth; blades flat or folded, smooth to sparsely hairy on the lower surfaces, at least near the ligules, 2-5 (6) mm wide; ligules fringed with fine hairs, short-hairy, 1-1.5 mm long.

Flowers: Inflorescence a panicle, the branches each ending in solitary, usually arching racemes, 3-5 cm long, the rachis more or less densely soft-hairy; spikelets on 4-5 mm long stalks, sterile, with awns 1-4 mm long, the unstalked spikelets fertile, 2-flowered, 7-9 mm long, with awns usually 10-13 mm long; paleas much reduced, more or less jagged and fringed with hairs; lodicules about 0.7 mm long; anthers about 4 mm long.

SCOLOCHLOA

Scolochloa festucacea **(Willd.) Link** (*Fluminea festucacea* [Willd.] A.S. Hitchc.)

rivergrass

HABITAT/RANGE:

Ponds, marshes, lakeshores and streamsides in the steppe and montane zones; rare in EC, SC and SE BC; N to AK, YT and NT, E to SK and S to IA, KS, MT, ID and OR.

DESCRIPTION:

General: Perennial grass from stout rhizomes; stems 100-150 cm tall.

Leaves: Sheaths open, strongly keeled, usually smooth; blades flat, firm, elongate, 5-10 mm wide, narrowed gradually to slender tips; ligules 2-6 mm long, jagged.

Flowers: Inflorescence an open panicle, 15-25 cm long, the branches mostly smooth below midlength, ascending; spikelets 3- to 4-flowered; lower glumes 4-6 mm long, the upper ones 5-7 mm long, awnless; lemmas about 6 mm long, 7-nerved; calluses bearded; anthers 3-4 mm long.

SECALE

Secale cereale **L.**

rye

HABITAT/RANGE:

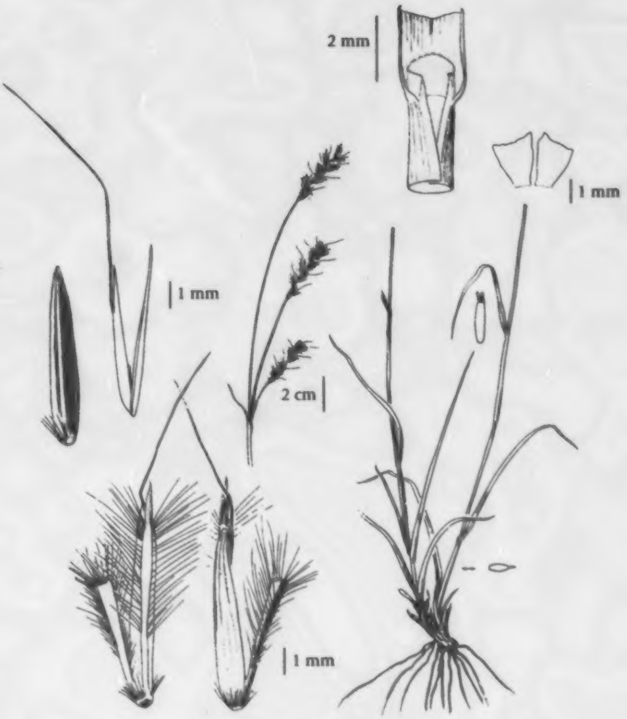
Dry waste areas and roadsides in the steppe and montane zones; rare (and not usually persisting) in S BC in and E of the Coast-Cascade Mountains; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots; stems hollow, mostly 60-150 cm tall.

Leaves: Sheaths open; blades flat, (3) 4-10 mm wide; ear-shaped lobes at the leaf-bases fairly prominent; ligules short membranous.

Flowers: Inflorescence a terminal spike, 8-15 cm long, with spikelets 1 per node; spikelets unstalked, 2-flowered, the florets side by side, the rachilla prolonged between the two; glumes stiff, slender, awl-like, 1-nerved, shorter than the lemmas; lemmas curved, 5-nerved, strongly fringed with fine hairs on the keels and exposed margins, awns mostly 4-7 cm long.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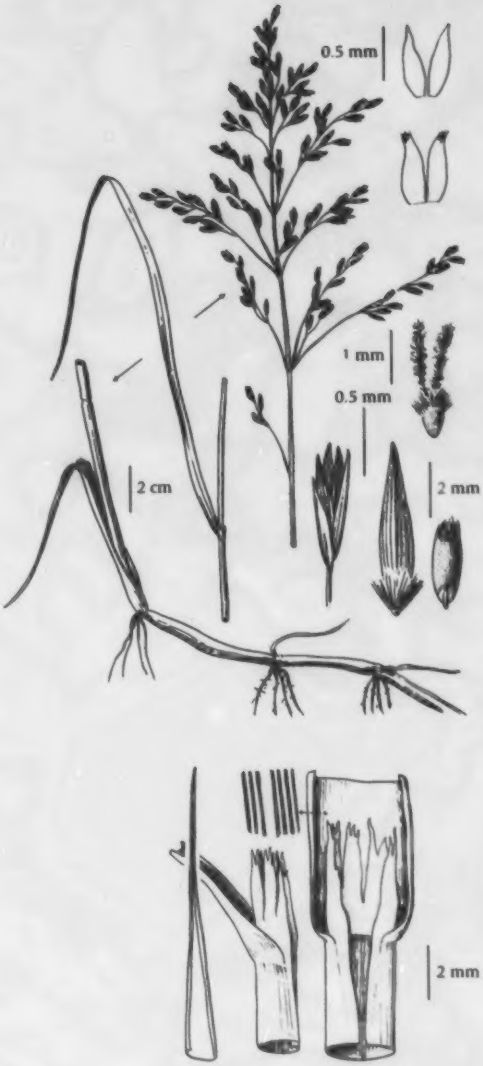
Schizachyrium scoparium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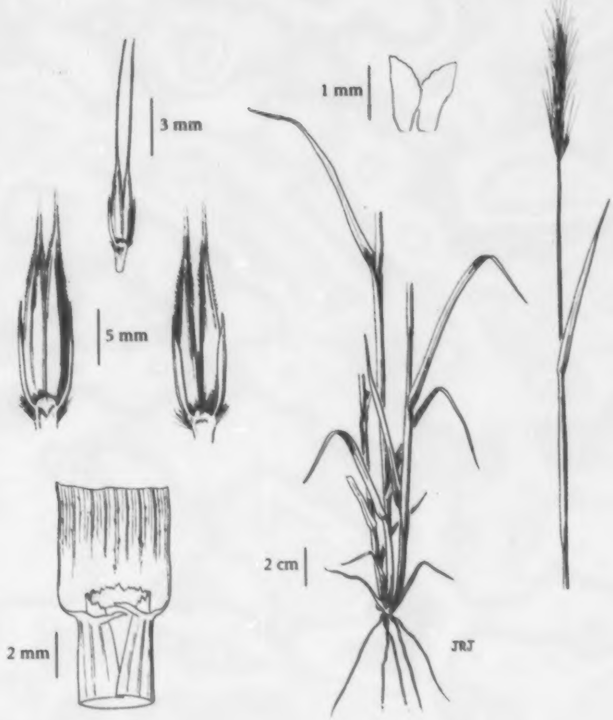
2 mm

Scolochloa festucacea


3 mm
1 mm
5 mm
2 cm
2 mm
JRJ

Secale cereale

SETARIA

1. Bristles of the inflorescence downwardly barbed; panicles interrupted .... *S. verticillata*
1. Bristles of the inflorescence upwardly barbed; panicles not interrupted.
    2. Spikelets subtended by (4) 5-6 (20) bristles; fertile lemmas distinctly cross-wrinkled .... *S. glauca*
    2. Spikelets subtended by (1) 2-3 (4) bristles; fertile lemmas not distinctly cross-wrinkled.
        3. Fertile lemmas and paleas closely surrounded by the sterile lemma and upper glume, not shed separately from them .... *S. viridis*
        3. Fertile lemmas and paleas loosely surrounded by the sterile lemma and upper glume, tending to be shed separately from them .... *S. italica*

Setaria glauca **(L.) Beauv.** (*S. lutescens* [Weigel] Hubb.)

yellow bristlegrass

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland, steppe and montane zones; infrequent in SW and SC BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots, basally branching; stems decumbent to erect, up to 100 cm tall.

Leaves: Sheaths keeled, smooth; blades flat to folded, 4-11 mm wide, more or less pimpled or soft-hairy on the upper surfaces near the base, the hairs 2-4 mm long; ligules with the membranous basal portions about as long as the fringes, scarcely 1 mm long.

Flowers: Inflorescence a cylindrical panicle, mostly 4-10 cm long, about 1 cm wide when pressed; spikelets 2-flowered, 3-3.6 mm long, each subtended by (4) 5 or 6 (20), stiff short, yellow bristles that are up to 3 times as long as the spikelet, the bristles directed upwards; lower glumes 3-nerved, 1/3 the length of the spikelets, the upper ones 5-nerved, 2/3 as long; lower flowers male or sterile, the upper fertile, the lower flowers with lemmas that include well-developed paleas just as long; fertile lemmas finely but distinctly cross-wrinkled.

Setaria italica **(L.) Beauv.**

foxtail millet

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland zone; rare in SW BC; introduced from Eurasia.

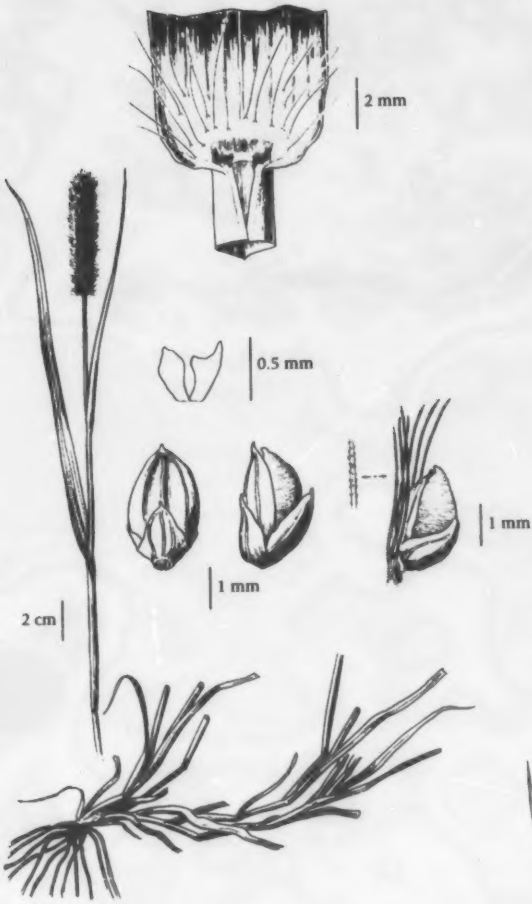
DESCRIPTION:

General: Annual grass from fibrous roots; stems erect, with many nodes, 50-150 cm tall.

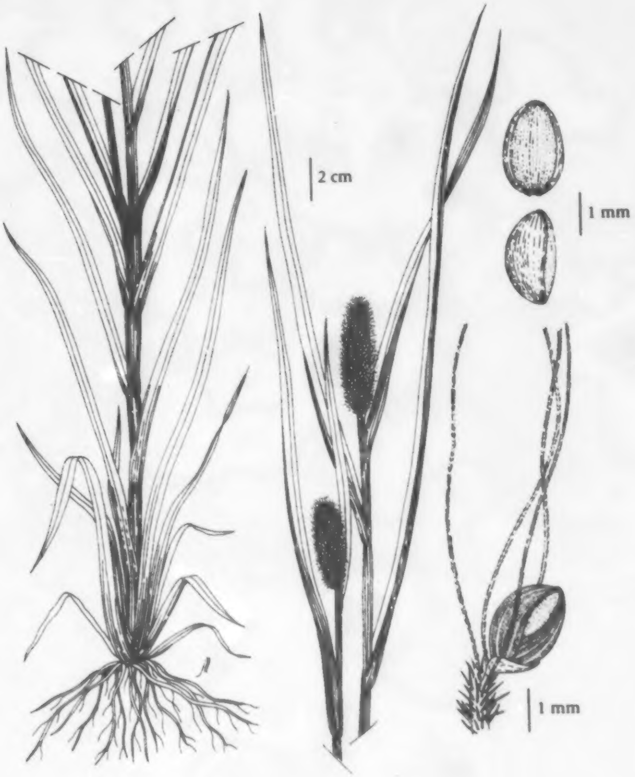
Leaves: Sheaths cylindrical, smooth, densely fringed with long, fine hairs on the margins above the middle; blades flat to folded, 8-15 mm wide, 15-45 cm long, sparsely hairy at the base, pimpled on the upper surfaces, more or less pimpled on the lower surfaces; ligules fringed with long, white, silky hairs up to 3 mm long.

Flowers: Inflorescence a cylindrical, nodding or nearly erect, spikelike panicle with the tips nodding, branched at the base, mostly 3-30 cm long, 1-3 cm wide, bearing numerous spikelets contiguously, or the basal few branches slightly spaced; spikelets 2-flowered, 2-3 mm long, each subtended by 2 to 4, green or blackish-green, short bristles that are from nearly as long as the spikelets to 4 times long as the spikelets, the hairs directed upwards; lower glumes 3-nerved, about as long as or 1/3 the length of the spikelets, the upper ones 5- or 7-nerved, 2/3 to 3/4 the length of the spikelets; lower flowers male or sterile, the upper fertile; fertile lemmas not distinctly cross-wrinkled, loosely surrounded by the sterile lemmas and upper glumes, tending to be shed separately from them.

Notes: Closely related to *S. viridis*.


2 mm
0.5 mm
1 mm
1 mm
2 cm

Setaria glauca



Setaria italica

Setaria verticillata **(L.) Beauv.** (*S. verticillata f. ambigua* [Guss.] Boivin)

bur bristlegrass

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland, steppe and montane zones; rare in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots, usually freely branched basally; stems ascending to erect, 30-100 cm tall.

Leaves: Sheaths keeled, usually hairy at the throats; blades flat to folded, mostly (3) 4-10 mm wide, rough-margined, usually slightly soft-hairy on the upper surfaces; ligules with the membranous basal portions about as long as the fringes, about 1.5 mm long.

Flowers: Inflorescence an erect, cylindrical, interrupted panicle, mostly 5-10 cm long, usually about 1 cm wide when pressed; spikelets 2-flowered, 2-2.5 mm long, each subtended by 1 (2), finely barbed bristle mostly 4-7 mm long, the hairs directed downwards: lower glumes 3-nerved, barely 1/2 as long as the upper ones; lower flowers male or sterile, the upper fertile; sterile flowers with lemmas sharp-pointed and with narrow paleas about 1/2 their length; anthers dark purple, about 1 mm long.

Setaria viridis **(L.) Beauv.**

green bristlegrass

HABITAT/RANGE:

Mesic to dry fields, roadsides and waste areas in the lowland, steppe and montane zones; frequent in S BC; introduced from Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots, basally branching; stems decumbent to erect, 10-100 cm tall.

Leaves: Sheaths keeled, smooth; blades flat to folded, 4-11 mm wide, smooth or fringed with soft fine hairs at the throats, the collars slightly hairy or smooth; ligules scarcely 2 mm long, fringed with fine hairs.

Flowers: Inflorescence a rather narrow, cylindrical panicle, not obviously lobed, rarely over 10 cm long, 15 mm wide when pressed; spikelets 2-flowered, 3-3.6 mm long, each subtended by 2 or 3 (4), rough bristles that are up to 3 times as long as the spikelets, the hairs directed upwards; lower flowers staminate or sterile, the upper fertile; fertile lemmas and paleas nearly completely enclosed by the upper glumes and sterile lemmas, and not shed separately from them, usually evidently cross-wrinkled when mature.

Notes: Closely related to *S. italica*.

SPARTINA

1. Spikes appressed; glumes and lemmas fringed with fine hairs on the keels .... *S. gracilis*
1. Spikes ascending to spreading; glumes and lemmas rough on the keels .... *S. patens*

Spartina gracilis **Trin.**

alkali cordgrass

HABITAT/RANGE:

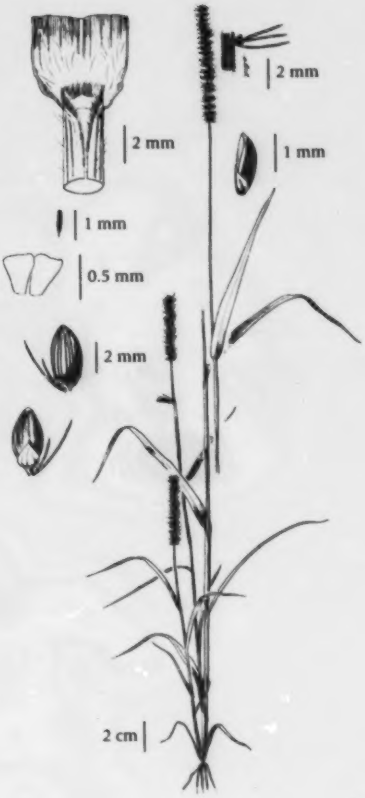
Marshes, wet ditches and meadows to dry (often alkaline) areas in the steppe and montane zones; infrequent in SC and SE BC; N to NT, E to MB and S to MN, KS, NM, AZ and CA.

DESCRIPTION:

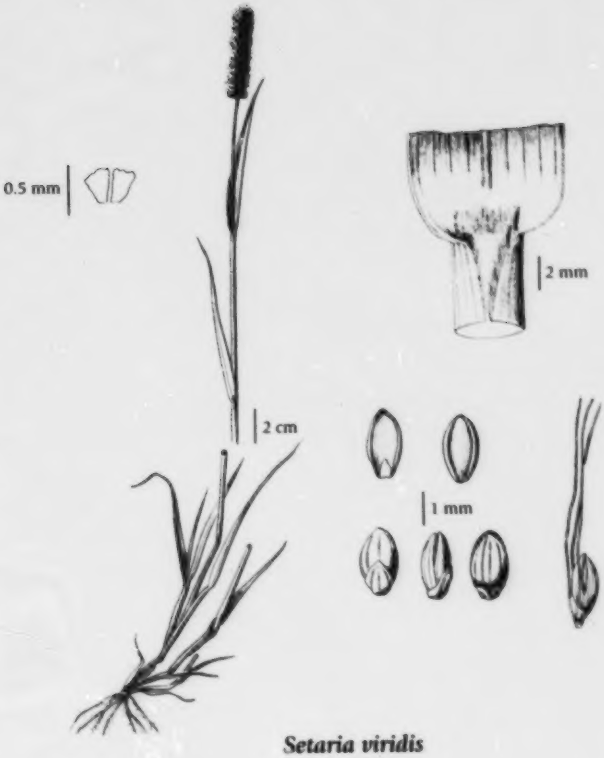
General: Perennial grass from rhizomes; stems 30-60 (100) cm tall.

Leaves: Sheaths open; blades in-rolled, usually not over 5 mm wide at the base; ligules blunt, finely hairy, less than 1 mm long.

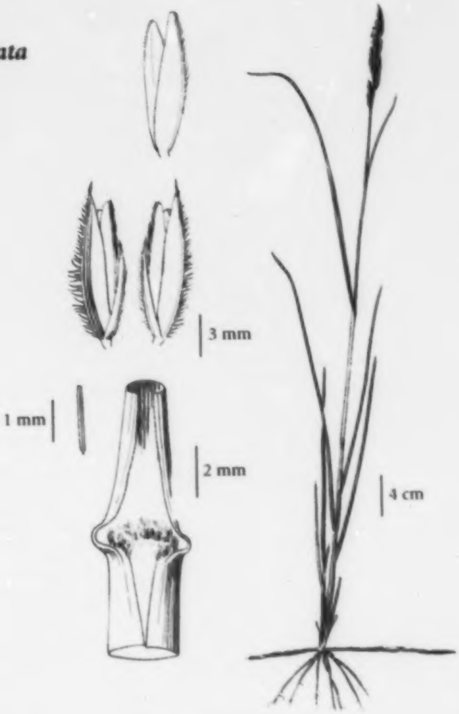
Flowers: Inflorescence of 4 to 8, appressed spikes, 2-4 cm long; spikelets 1-flowered, in 2 rows on one side of axis; glumes narrowly lanceolate, 1-nerved, unequal, with long, fine hairs on the keels, the lower ones about 5-6 mm long, shorter than the florets, long-pointed to awn-tipped, the upper ones 2-3 mm longer, slightly exceeding the florets, more rounded; lemmas firm, obscurely nerved, keeled, fringed with fine hairs on the keels, awnless, 6.5-8.5 mm long.


2 mm
2 mm
1 mm
1 mm
0.5 mm
2 mm
2 cm

Setaria verticillata


0.5 mm
2 mm
2 cm
1 mm

Setaria viridis


3 mm
1 mm
2 mm
4 cm

Spartina gracilis

***Spartina patens* (Ait.) Muhl.**
salt meadowgrass
HABITAT/RANGE:
Salt marshes in the lowland zone; rare in SW BC, known only from Comox and Vancouver; introduced from E North America.
DESCRIPTION:
General: Perennial grass from long rhizomes; stems slender, stiff, numerous, 30-100 cm tall.

Leaves: Sheaths open; blades in-rolled or flat at base, 1-3 mm wide; ligules blunt, finely hairy, less than 1 mm long.

Flowers: Inflorescence of 3 to 6, ascending to spreading, densely graduated spikes, 2-5 cm long, spikelets 1-flowered, in two rows on one side of the axis; glumes 1-nerved, unequal, the lower ones linear, 2.5-4 mm long, rough on the keels, short-awned, the upper ones narrowly lanceolate, rough below on the keels, long-pointed or almost awl-tipped, 7.5-13 mm long; lemmas firm, obscurely nerved, keeled, rough on the keels, rounded, awnless, 5-7 mm long.

SPHENOPHOLIS

1. Upper glumes rounded at the tips; inflorescence a dense, sometimes somewhat open panicle .... *S. obtusata*

1. Upper glumes rounded to sharp-pointed at the tips; inflorescence a distinctly open, narrow panicle .... *S. intermedia*

***Sphenopholis intermedia* (Rydb.) Rydb.** (*S. obtusata* [Michx.] Scribn. var. *major* [Torr.] Erdman)
slender wedgegrass
HABITAT/RANGE:
Moist meadows and streambanks, shallow ponds and hot springs in the steppe and montane zones; rare in SC, SE and NE BC; N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.
DESCRIPTION:
General: Perennial, tufted, short-lived grass from fibrous roots, sometimes flowering as a winter annual; stems 30-110 cm tall.

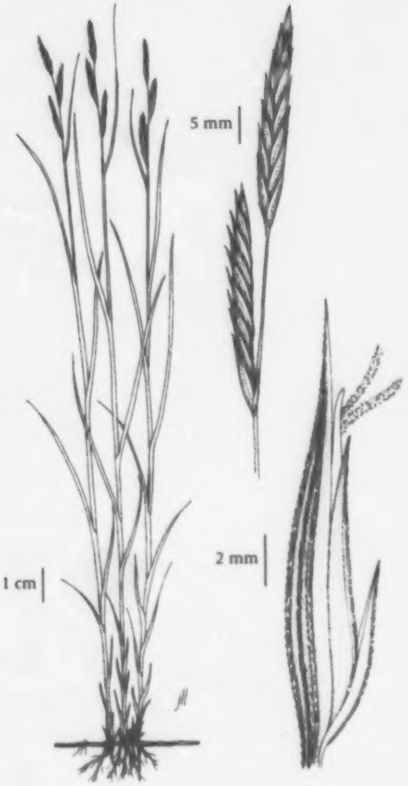
Leaves: Sheaths open; blades flat, 2-5 mm wide, minutely rough; ligules smooth or rarely minutely rough externally, finely jagged and irregularly toothed, 1.5-2.5 mm long.

Flowers: Inflorescence a distinctly open, narrow panicle, (2) 7-20 cm long, the branches crowded, erect, plainly distinguishable within the inflorescence; spikelets 2-flowered, lower glumes narrowly linear, 1.6-2.5 mm long, the upper ones oblanceolate, rounded to nearly sharp-pointed, 2.2-2.5 mm long, about 2 to 3 times as wide as the lower; lemmas 2.5-3 mm long; anthers about 0.6 mm long.

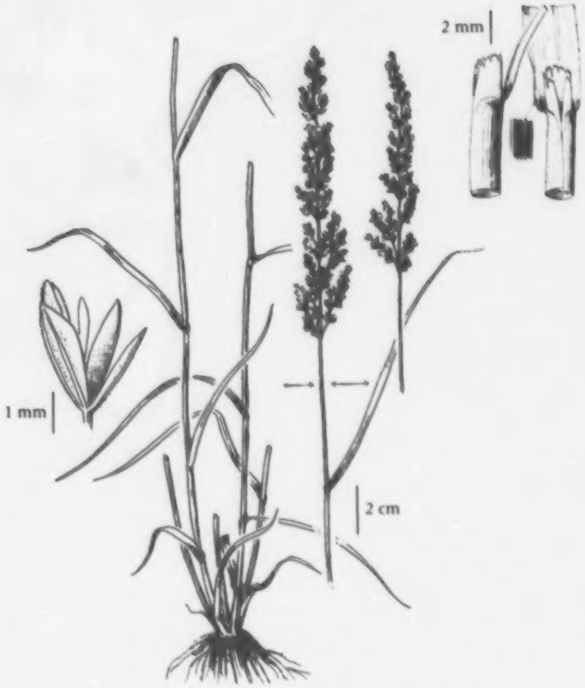
***Sphenopholis obtusata* (Michx.) Scribn.**
prairie wedgegrass
HABITAT/RANGE:
Moist meadows, streambanks, shallow ponds and hot springs in the steppe and montane zones; rare in SC and SE BC; E to NB and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA.
DESCRIPTION:
General: Perennial, tufted grass from fibrous roots, sometimes flowering as a winter annual; stems 20-80 (100) cm tall.

Leaves: Sheaths open, smooth or minutely rough to hairy; blades flat, (2) 3-5 (6) mm wide, rough to hairy; ligules usually slightly minutely rough externally, irregularly jagged and more or less toothed, (1) 1.5-2 (2.5) mm long.

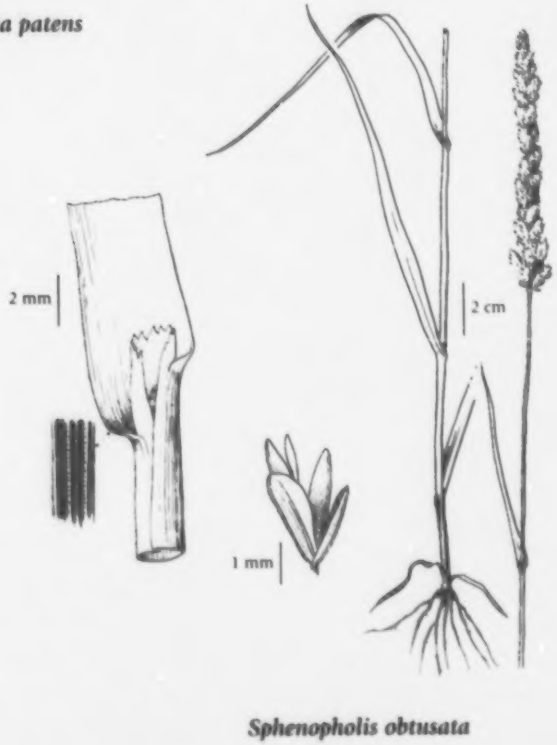
Flowers: Inflorescence a dense, spikelike to somewhat more open and interrupted panicle, (2) 5-15 cm long, the branches erect; spikelets 2-flowered; rachillas prolonged, with rudiments; glumes rough, the lower ones very narrow, scarcely 2 mm long, the upper ones much flattened, slightly hood-shaped, averaging about 2 mm long, 3-4 times as wide, the upper glumes rounded at the tips; lemmas oblong, rough, 2-2.6 mm long, unawned (rarely awn-tipped); anthers about 0.5 mm long.


5 mm
2 mm
1 cm
jl

Spartina patens



Sphenopholis intermedia



Sphenopholis obtusata

SPOROBOLUS

1. Plants annuals; panicle usually concealed but eventually exserted from the swollen sheaths .... *S. neglectus*
1. Plants perennials; panicle generally partially included in the sheaths.
    2. Panicle open, branches spreading; stems nearly circular in cross-section, tapered, hollow or sometimes pith-filled .... *S. airoides*
    2. Panicle spikelike, branches erect, if panicles slightly open then branches ascending or spreading; stems solid, longitudinally grooved.
        3. Spikelets 4 mm long or more; branches erect .... *S. compositus*
        3. Spikelets 3 mm long or less; branches ascending .... *S. cryptandrus*

Sporobolus airoides **(Torr.) Torr.**
hairgrass dropseed

HABITAT/RANGE:

Moist to mesic, often alkaline slopes, grasslands and shrublands in the steppe zone; rare in SC BC, known only from Osoyoos and Keremeos; S to AR, TX, MX and CA.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems nearly circular in cross-section, tapered, hollow or sometimes pith-filled, smooth, up to 100 cm tall.

Leaves: Sheaths open; blades strongly in-rolled, 2-4 mm wide, smooth beneath, very finely minutely rough above, sparsely and copiously stiff-hairy just above the ligules and along the throats, the longer hairs about 3 mm long, the collars smooth; ligules scarcely 0.5 mm long.

Flowers: Inflorescence an open panicle, (10) 15-40 cm long, projecting beyond sheaths, the branches slender, spreading, bearing spikelets mainly near the tips; spikelets 1-flowered; glumes sharp-pointed, unequal, the lower ones about 1 mm long, the upper ones nearly twice as long, either or both often deciduous before the florets; lemmas 2-2.5 mm long, paleas nearly equal to the lemmas, tending to split to the base with maturity; lodicules fan-shaped, about 0.25 mm long; anthers 1-1.3 mm long.

Sporobolus compositus **(Poir.) Merr. var. *compositus*** (*S. asper* [Michx.] Kunth)
rough dropseed

HABITAT/RANGE:

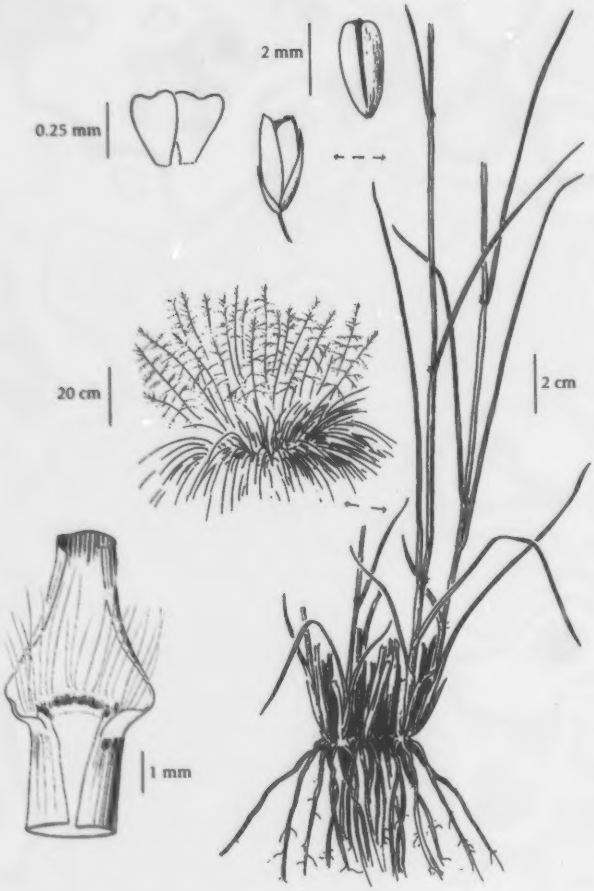
Mesic to dry grasslands and shrublands in the steppe zone; rare in SC BC; E to PQ, NB and NS and S to ME, MA, PA, NC, GA, AL, MS, LA, TX, NM, AZ, ID and WA.

DESCRIPTION:

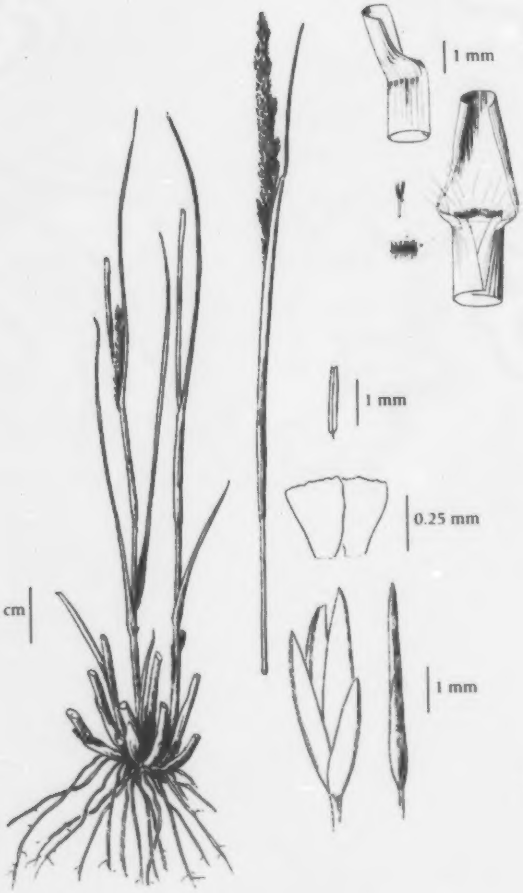
General: Perennial, strongly tufted grass from fibrous roots; stems nearly or quite solid, longitudinally grooved, smooth, usually 60-100 cm tall.

Leaves: Sheaths open, smooth or soft-hairy; blades usually in-rolled, tough, 1-4 mm wide, mostly soft-hairy above, especially near the ligules, the collars smooth or slightly hairy near the margins; ligules scarcely 0.5 mm long.

Flowers: Inflorescence a narrow, spikelike panicle, up to 15 cm long, usually at least partially enclosed in the sheath, the branches erect; spikelets 1-flowered, strongly flattened; glumes blunt, the lower ones 2.5-3 mm long, the upper ones about 1 mm longer; lemmas blunt, smooth, 4-5 mm long, paleas nearly equal to the lemmas; lodicules fan-shaped, about 0.5 mm long; anthers 1.5-2.5 mm long.


2 mm
0.25 mm
20 cm
2 cm
1 mm

Sporobolus airoides


1 mm
1 mm
0.25 mm
2 cm
1 mm

Sporobolus compositus var. *compositus*

Sporobolus cryptandrus **(Torr.) A. Gray** (*S. cryptandrus* ssp. *typicus* var. *occidentalis* Jones & Fassett, *S. cryptandrus* ssp. *fuscicolus* [Hook.] E.K. Jones & Fassett)

sand dropseed

HABITAT/RANGE:

Mesic to dry grasslands and shrublands in the steppe and montane zones; infrequent in BC east of the Coast-Cascade Mountains; E to SW PQ and NB and S to ME, MA, PA, NC, GA, MS, LA, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, strongly tufted grass from fibrous roots; stems solid, more or less strongly grooved, mostly 30-70 (100) cm tall.

Leaves: Sheaths open, smooth except along the margins and especially at the throats where strongly fringed with fine woolly hairs; blades usually in-rolled, 2-4 (5) mm wide, mostly smooth but very strongly soft-hairy along the margins bordering the ligules, the collars with numerous, long, usually divergent hairs (1) 2-3 mm long; ligules 0.5-0.7 mm long.

Flowers: Inflorescence a moderately open, spikelike panicle, (9) 10-20 (30) cm long, generally partially included in the sheaths, the branches simple to again branched, usually stiffly ascending, bearing spikelets to near the base; spikelets 1-flowered; glumes sharp-pointed, unequal, the lower ones about 1 mm long, the upper ones about twice as long; lemmas sharp-pointed, 2-3 mm long, paleas nearly equal to the lemmas; lodicules fan-shaped, about 0.2 mm long; anthers 0.5-1 mm long.

Sporobolus vaginiflorus **(Torr.) Wood ssp. *vaginiflorus***

poverty grass

HABITAT/RANGE:

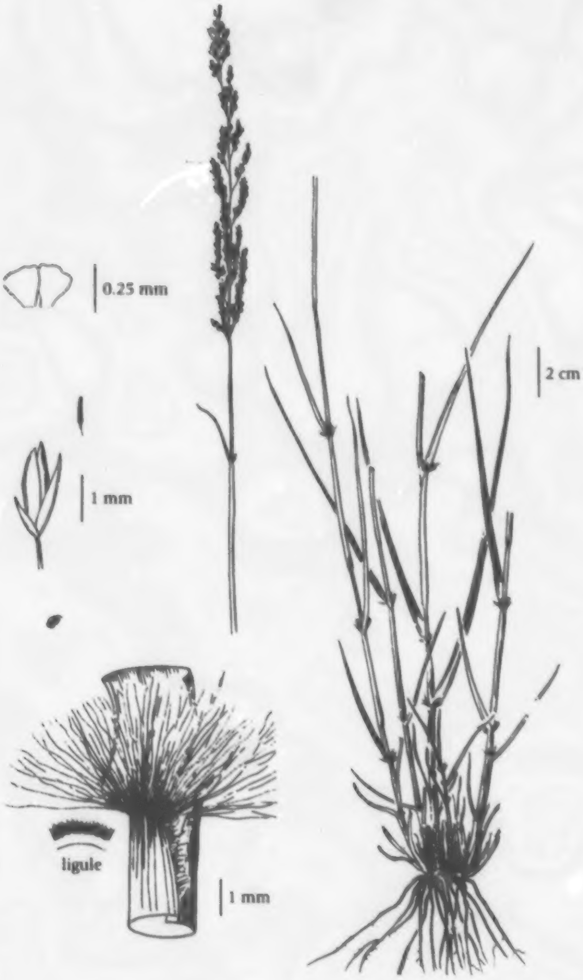
Moist to dry waste areas in the lowland zone; rare in the Vancouver area; introduced from the E U.S.

DESCRIPTION:

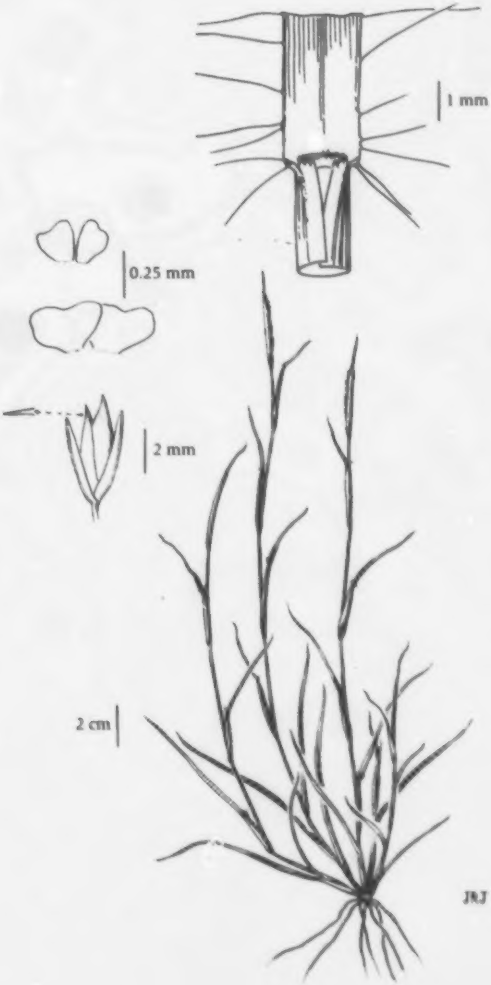
General: Annual, tufted grass from fibrous roots; stems thin, wiry, seldom over 1 mm wide, erect to spreading, 20-40 (50) cm tall.

Leaves: Sheaths open; blades usually in-rolled, 1-2 mm wide, the lower ones elongate, the upper ones progressively shorter to only 1-2 cm long, long-hairy on the margins, 2-4 mm long, pustular-based; ligules minute, up to 0.5 mm long.

Flowers: Inflorescence a slender panicle, 2-5 cm long, usually concealed but eventually exserted from the swollen sheaths, the axillary panicles also developed, and mostly included in the lower sheaths; spikelets 1-flowered, crowded; glumes narrowly triangular-lanceolate, straight, long-pointed, the lower ones 2.8-4.1 mm long, the upper ones 2.9-4.6 mm long; lemmas narrowly triangular-lanceolate, straight, minutely long-hairy, long-pointed, 3-5 mm long, paleas equal to or somewhat exceeding the lemmas; anthers 1-1.2 mm long.


0.25 mm
2 cm
1 mm
ligule
1 mm

Sporobolus cryptandrus


1 mm
0.25 mm
2 mm
2 cm
JRJ

Sporobolus vaginiflorus* ssp. *vaginiflorus

THINOPYRUM

1. Leaf blade margins prominently thickened and hard, blades sparsely hairy on the upper surfaces; plants rhizomatous .... *T. intermedium*

1. Leaf blade margins not thickened, membranous, blades densely hairy or rough on the upper surfaces; plants tufted .... *T. ponticum*

***Thinopyrum intermedium* (Host) Barkw. & D.R Dewey** (*Elymus hispidus* [Opiz] Meld., *Agropyron intermedium* [Host] Beauv., *A. trichophorum* Richt., *Elytrigia intermedia* [Host] Nevski)

intermediate wheatgrass

HABITAT/RANGE:

Dry roadsides and forests in the montane zone; rare in SW BC, infrequent in SC and SE BC; introduced from Eurasia.

DESCRIPTION:

General: Perennial grass from rhizomes; stems smooth or hairy, 50-115 cm tall.

Leaves: Sheaths smooth or fringed with fine hairs; blades flat, the margins prominently thickened and hard, smooth on the lower surfaces, sparsely hairy on the upper surfaces, 2-8 mm wide; ligules membranous, 0.1-0.75 mm long; ear-shaped lobes at the leaf-bases 0.5-1.25 mm long.

Flowers: Inflorescence an erect or lax, terminal spike, 8-21 cm long, with 1 spikelet per node; spikelets 3- to 10-flowered, 11-18 mm long; glumes stiff, blunt, with evident midnerves often forming thick points, 4.5-10 mm long, the margins not transparent; lemmas 7.5-10 mm long, blunt and awnless or rarely with awns up to 5 mm long.

***Thinopyrum ponticum* (Podp.) Z.W. Liu & R.R.-C.Wang** (*Elymus elongatus* [Host] Runemark ssp. *ponticus* [Podp.] Meld., *Agropyron elongatum auct. non* [Host] Beauv., *Elytrigia pontica* [Podp.] Holub)

tall wheatgrass

HABITAT/RANGE:

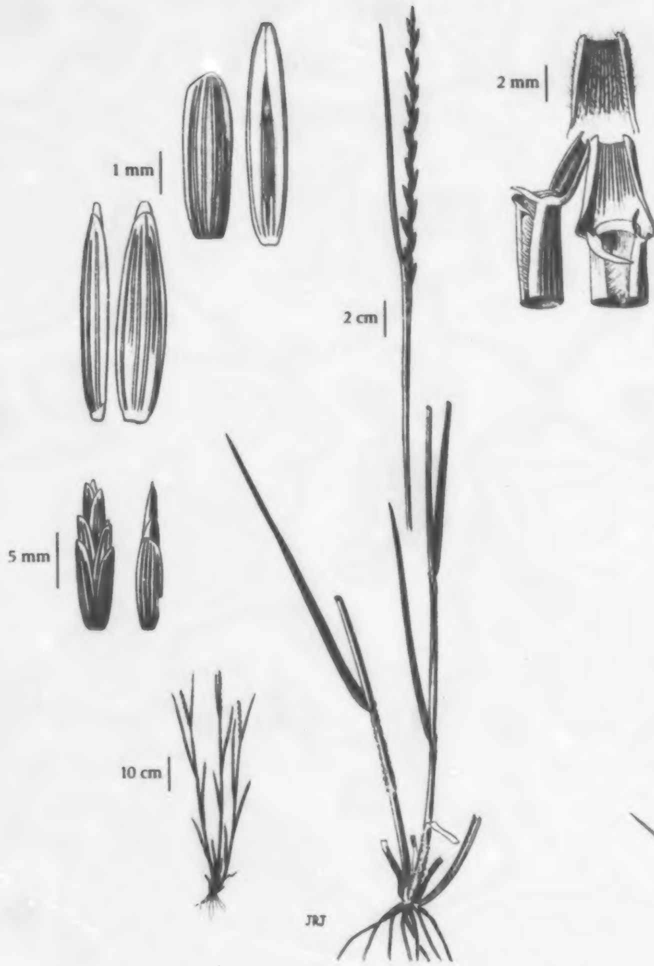
Dry roadsides, slopes and open forests in the steppe and lower montane zones; rare in SW BC (Vancouver), infrequent in SC and SE BC; introduced from Eurasia.

DESCRIPTION:

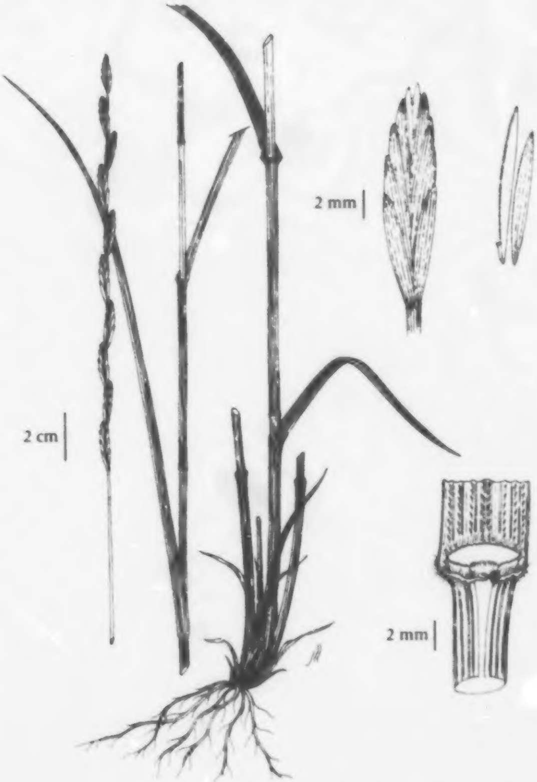
General: Perennial, tufted grass from fibrous roots; stems smooth, nodes exposed, 50-200 cm tall.

Leaves: Sheaths smooth but fringed with fine hairs on the lower margins; blades with in-rolled margins, not thickened, membranous, densely hairy or rough, with 8, rounded, thickened nerves on the upper surfaces, 2-6.5 mm wide; ligules membranous, 0.3-1.5 mm long; ear-shaped lobes at the leaf-bases 0.2-1.5 mm long.

Flowers: Inflorescence an erect, terminal spike, 10-42 cm long, with 1 spikelet per node; spikelets 6- to 12-flowered, 13-30 mm long; glumes blunt, stiff, 6.5-10 mm long, rough on the upper parts of the keels, the margins transparent; lemmas 9-12 mm long, awnless.


2 mm
1 mm
2 cm
5 mm
10 cm
JRJ

Thinopyrum intermedium


2 mm
2 cm
2 mm
JR

Thinopyrum ponticum

TORREYOCHLOA

1. Lemmas with 7 distinct nerves, 2.5-3.5 mm long; spikelets 4-7 mm long .... *T. pallida*
1. Lemmas with 5 distinct nerves (sometimes with 2 indistinct marginal ones), 2-2.5 mm long; spikelets 4-5 mm long .... *T. pauciflora*

Torreyochloa pallida **(Torr.) Church** (*Glyceria fernaldii* [A.S. Hitchc.] St. John, *Puccinellia pallida* [A.S. Hitchc.] Church)

Fernald's false manna; Fernald's alkaligrass

HABITAT/RANGE:

Shallow water, marshes, bogs and wet meadows in the montane zone; rare in EC BC; amphiberingian, N to NT, E to NF and S to ME, MA, PA, WV, MI, WI, MN and WY; E Asia.

DESCRIPTION:

General: Perennial grass from fibrous roots; stems slender, flaccid, sometimes somewhat decumbent, creeping at base, 30-100 cm tall.

Leaves: Sheaths open; blades flat, 2-8 mm wide; ligules finely toothed, pointed, 1-1.5 mm long.

Flowers: Inflorescence an open panicle, 5-20 cm long, the branches relatively few, eventually diffuse, 5-15 cm long; spikelets 4- to 6-flowered, narrowly egg-shaped, 4-7 mm long; glumes broadly rounded at the wax-papery tips; lemmas egg-shaped, sharply 7-nerved, finely hairy or minutely rough, eroded at the rounded tips, 2.5-3.5 mm long; paleas 4 to 5 times as long as wide; anthers about 1 mm long.

Torreyochloa pauciflora **(J.S.Presl) Church** (*Glyceria pauciflora* J.S. Presl, *Puccinellia pauciflora* [J.S. Presl] Munz var. *microtheca* [Buckl.] C.L. Hitchc. and var. *pauciflora*)

weak false manna; weak alkaligrass

HABITAT/RANGE:

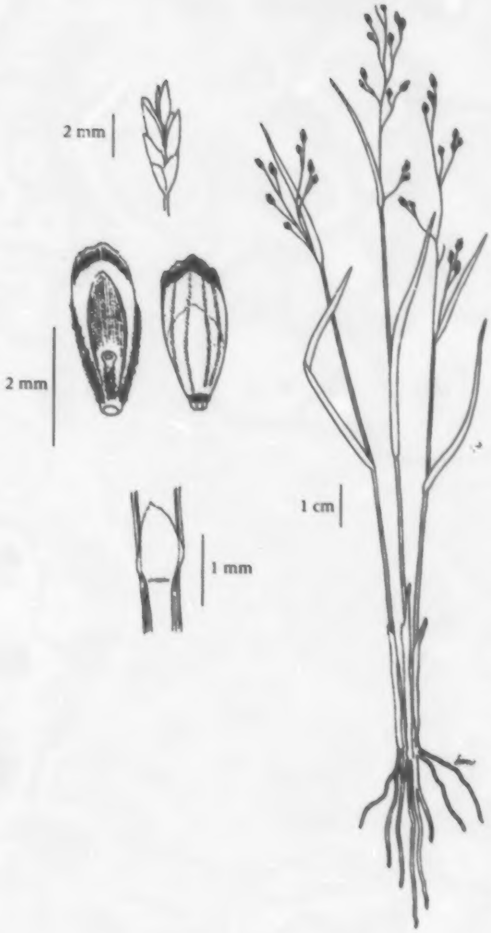
Shallow water, marshes, bogs and wet meadows in the lowland to subalpine zones; frequent throughout BC; N to AK, E to AB and S to SD, NM, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from conspicuous rhizomes; stems often somewhat decumbent, 15-140 cm tall.

Leaves: Sheaths smooth or sometimes very slightly minutely rough, cross-walled; blades flat, usually minutely rough and slightly rough on both surfaces (or only on the upper ones), with 8, rounded, thickened nerves on the upper surfaces, 3-12 (15) mm wide; ligules usually irregular jagged, smooth or only slightly rough above, sharp-pointed, 3-9 mm long.

Flowers: Inflorescence a rather loose panicle, 5-20 cm long, the branches usually 2 or 3 per node, ascending to spreading or drooping; spikelets 3- to 7-flowered; glumes broadly egg-shaped, membranous above, usually slightly jagged with fine hairs, the lower ones 0.8-1.1 mm long, the upper ones 1.2-1.8 mm long; lemmas strongly 5-nerved (or 5-nerved with lighter submarginal nerves) to plainly 7-nerved, minutely rough-hairy, 1.9-2.9 mm long, usually with a purplish band just below the membranous margin of the blunt tips that are jagged with fine hairs; lodicules 0.3-0.5 mm long; anthers 0.5-0.7 mm long.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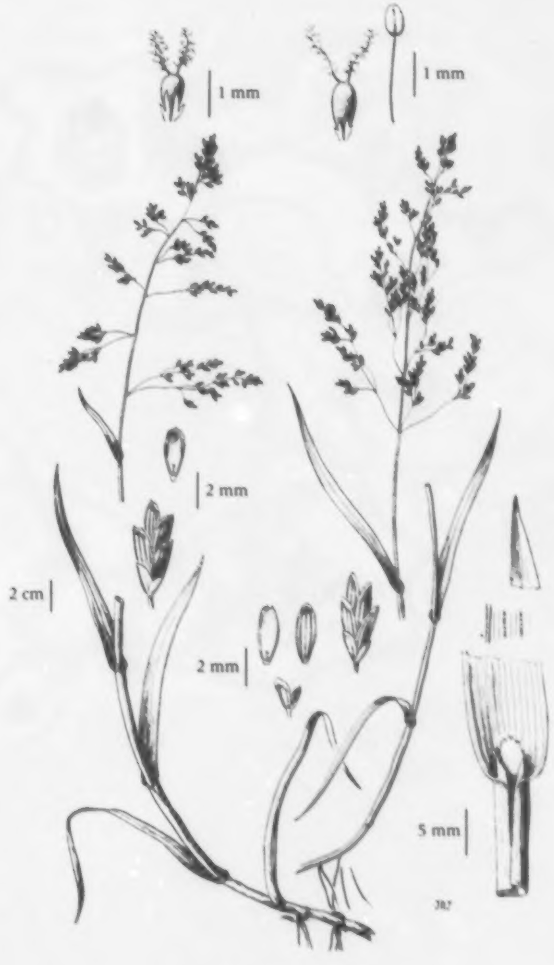
Torreyochloa pallida


1 mm
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Torreyochloa pauciflora

TRISETUM

1. Lemmas awnless or with awns rarely exceeding the lemmas .... *T. wolfii*
1. Lemmas awned, the awns far exceeding the lemmas.
    2. Panicles spikelike, dense; basal sheaths short-hairy; upper glumes not much longer than lower ones .... *T. spicatum*
    2. Panicles open to narrow (but not spikelike), loose; basal sheaths smooth; upper glumes much longer than lower ones .... *T. canescens*

***Trisetum canescens* Buckl.** (*T. cernuum* Trin.)

tall trisetum; nodding trisetum

HABITAT/RANGE:

Moist to dry meadows, forest openings, grasslands and shrublands in the lowland, steppe and montane zones; common in coastal BC, less frequent eastward; N to AK, E to AB and S to WY, AZ and CA.

DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems smooth, (30) 50-120 tall.

Leaves: Sheaths open, minutely rough, short appressed-hairy, or soft-hairy, the basal sheaths smooth; blades flat, minutely rough to soft-hairy, (2) 4-11 (12) mm wide, the margins rough or with hairs 2-3 mm long near the ligules; ligules smooth to hairy, irregularly jagged to shallowly jagged, fringed with fine hairs, 1.5-4 mm long.

Flowers: Inflorescence a large, open or narrow, drooping to ascending panicle, 10-30 cm long, the branches more or less threadlike, bearing spikelets mainly towards the tips; spikelets with 2 or 3 perfect florets and 1 or 2 sterile upper lemmas; rachillas with joints about 2-3 mm long, the hairs about twice as long as the callus hairs; lower glumes narrow, mostly only 1-4 (5) mm long, the upper ones much wider, 3.5-6 (8) mm long, but usually shorter than the lower florets; lemmas 5-7 mm long, toothed, the teeth about 2 mm long, awned, the awns ascending, zig-zagged, about 10-14 mm long, the callus hairs scarcely 1 mm long; lodicules about 1-1.5 mm long; anthers 1-2.2 mm long.

***Trisetum spicatum* (L.) Richt.** (*T. spicatum* ssp. *alaskanum* [Nash] Hult., ssp. *majus* [Vasey] Hult. and ssp. *molle* [Michx.] Hult.)

spike trisetum

HABITAT/RANGE:

Moist to dry, often rocky sites in all vegetation zones; common throughout BC although less frequent along the coast; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, VI, TN, MN, SD, NM, AZ, CA and MX; Eurasia, S America.

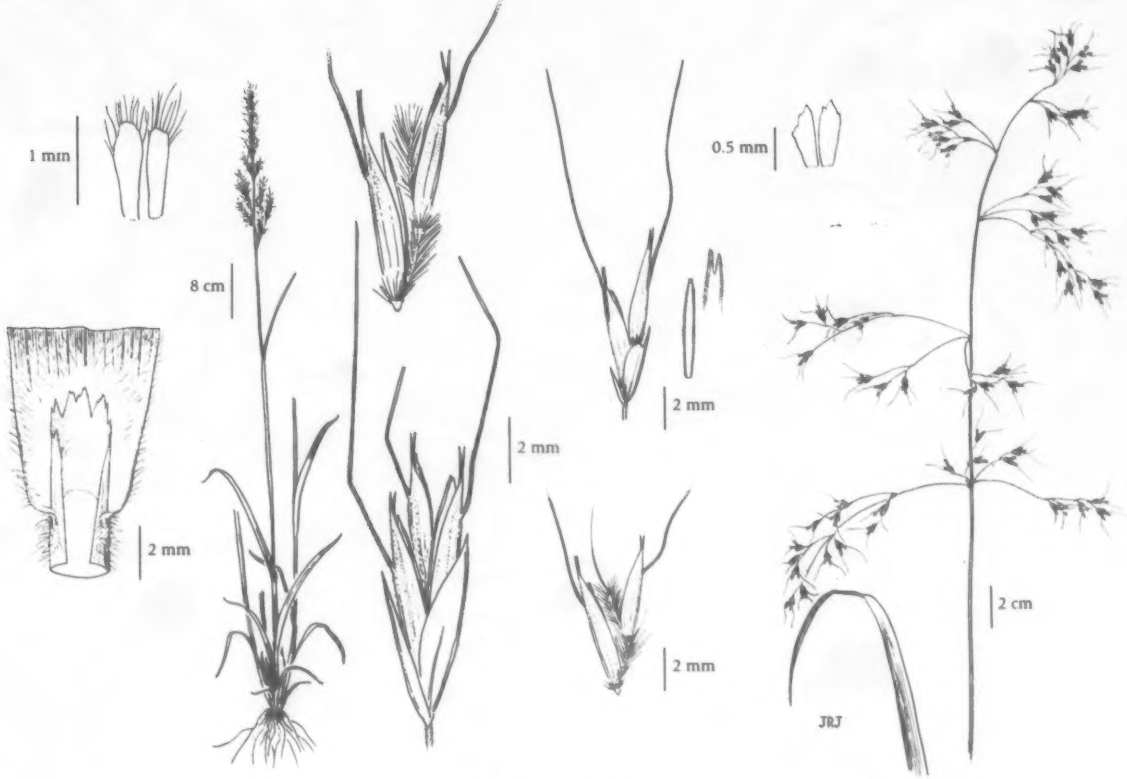
DESCRIPTION:

General: Perennial, tufted grass from fibrous roots; stems rough or short-hairy, 10-50 (70) cm tall.

Leaves: Sheaths open, the basal sheaths short-hairy; blades folded to flat, minutely rough, 1.5-4 (5) mm wide; ligules usually hairy externally, finely jagged and more or less fringed with fine hairs, 0.5-2 (averaging 1) mm long.

Flowers: Inflorescence a dense, spikelike, usually continuous but often interrupted, purplish, tawny or silvery panicle, 2-15 cm long; spikelets 2- to 3-flowered, nearly unstalked; glumes membranous, the lower ones averaging about (3) 4 (4.5) mm long, the upper ones mostly rough on the keels, 1/5-1/4 longer and about 1/2 again as wide, usually surpassing the lower florets and nearly equal to the upper florets; lemmas usually minutely rough, 4-5 mm long, bidentate, awned, the awns strongly abruptly bent, broadly spreading, arising up to 1.5 mm below the tips of the lemmas, 5-6 mm long; lodicules nearly entire to sharply lobed, about 0.7-1 mm long; anthers up to 1.5 mm long.

Notes: This is a highly variable species which cannot realistically be separated into infraspecific taxa. Even Hulten (1959), who recognized 14 subspecies in the *T. spicatum* complex, stated that "...the differentiation between the different taxa becomes somewhat arbitrary..." for our western cordilleran material.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8 cm
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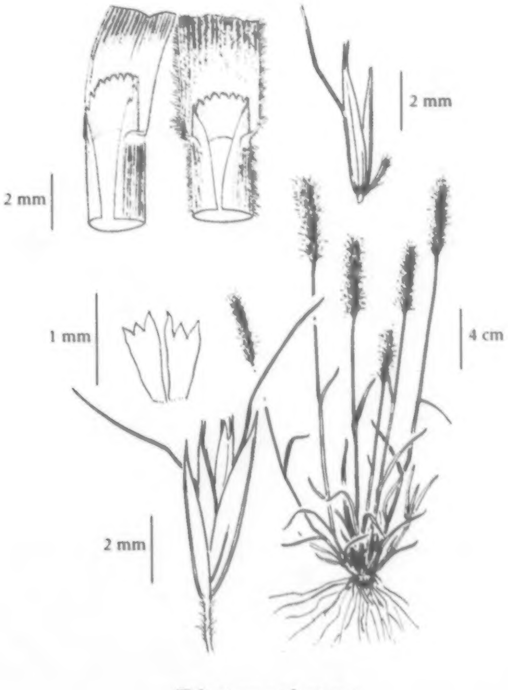
2 mm
0.5 mm
2 mm
2 mm
2 cm
JRJ

Trisetum canescens


2 mm
2 mm
1 mm
4 cm
2 mm

Trisetum spicatum

***Trisetum wolfii* Vasey**

Wolf's trisetum

HABITAT/RANGE:

Wet meadows and moist streamsides in the subalpine zone; rare in S BC east of the Coast-Cascade Mountains; E to SK and S to NM, UT, NV and CA.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots or short rhizomes; stems mostly 40-80 (100) cm tall.

Leaves: Sheaths usually minutely rough but sometimes soft-hairy; blades flat, rough to sparsely soft-hairy, 2-4 (6) mm wide; ligules minutely short hairy externally, squared-off, more or less fringed with fine hairs, 2.5-4 mm long.

Flowers: Inflorescence a narrow panicle, 8-15 cm long, the branches erect or ascending; spikelets 2- to 3-flowered, usually purplish before flowering, nearly unstalked; rachilla joints about 1.5 mm long, sparsely stiff-hairy, the hairs about 1 mm long; glumes nearly equal in width and length, usually exceeding the lower or even the upper florets, the lower ones 4-6 (6.5) mm long, the upper ones 5.5-7 mm long; lemmas 4-5 mm long, blunt, unawned or with awns rarely exceeding the lemmas, the calluses very sparsely hairy, with hairs about 1 mm long; lodicules oblong, slenderly lobed to fringed with hairs, about 1 mm long; anthers up to 1.5 mm long.

TRITICUM

***Triticum aestivum* L.**

wheat

HABITAT/RANGE:

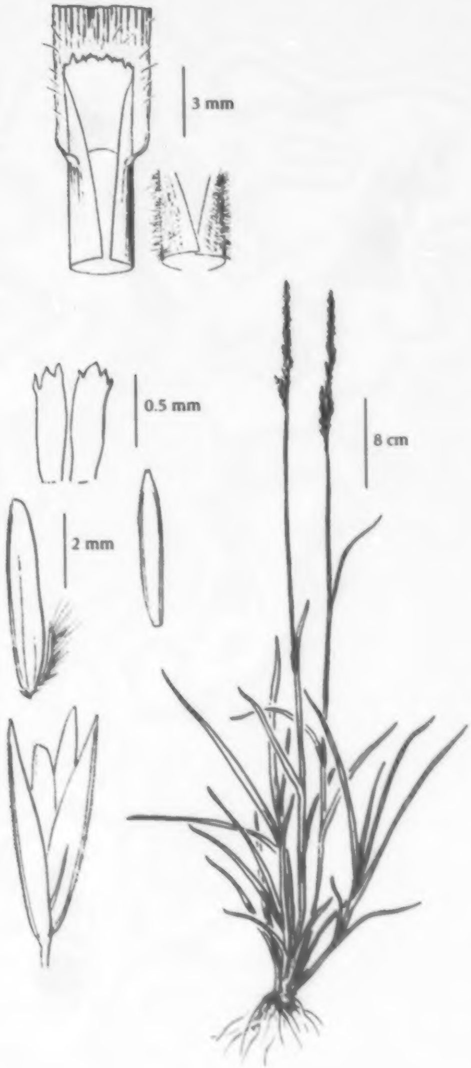
Mesic to dry waste areas and roadsides in the lowland, steppe and montane zones; rare in S BC; introduced from Eurasia.

DESCRIPTION:

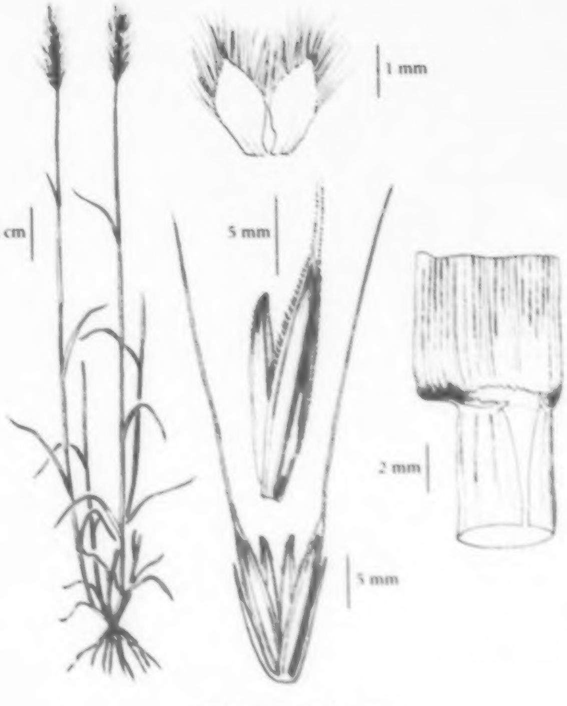
General: Annual grass from fibrous roots, sometimes flowering as a winter annual; stems 40-150 cm tall.

Leaves: Sheaths open; blades flat (in-rolled in bud), 5-20 mm wide; ligules membranous, scarcely 1 mm long; ear-shaped lobes at leaf-bases prominent.

Flowers: Inflorescence a terminal spike, 5-12 cm long, awned or awnless, with 1 spikelet per node; spikelets 2- to 5-flowered, unstalked; glumes firm, keeled, strongly 3- (or more) nerved, sharp-pointed to awned, the awns 1 to several; lemmas broad, lopsidely keeled, several-nerved, the nerves non-convergent, 4-5 mm long, sharp-pointed to awned; lodicules oblong, slenderly lobed to fringed with hairs, about 1 mm long; anthers up to 1.5 mm long.


3 mm
0.5 mm
8 cm
2 mm

Trisetum wolfii


1 mm
8 cm
5 mm
2 mm
5 mm

Triticum aestivum

VAHLODEA[22]

***Vahlodea atropurpurea* (Wahlenb.) Fries** (*Deschampsia atropurpurea* [Wahlenb.] Scheele, *Vahlodea latifolia* [Hook.] Hultén, *V. atropurpurea* ssp. *latifolia* [Hook.] A.E. Porsild)

mountain hairgrass

HABITAT/RANGE:

Moist to wet open woods, forest edges, meadows, streambanks and shorelines in the montane to alpine zones; common throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to N CO, ID and CA; Greenland, Eurasia, S South America.

DESCRIPTION:

General: Perennial, loosely tufted grass from fibrous roots; stems erect, 15-80 cm tall.

Leaves: Smooth to soft hairy, the lower sheaths usually stiff-hairy, the hairs angled backwards; blades flat (rarely in-rolled), 1-8.5 mm wide and up to 30 cm long with prowlike tips; ligules rounded to blunt, the margins often jagged, 0.8-3.5 mm long, the tips fringed with fine hairs.

Flowers: Inflorescence an open panicle, to 20 cm long; spikelets 4-7 mm long with 2 florets; glumes smooth or rough-hairy on the keel and marginal nerves, as long as or longer than the spikelets, the lower glumes 4-5 (6.5) mm long, the upper glumes 4-5.5 (7) mm long; lemmas 1.8-3 mm long, awned, the awns attached on the lower back, 2-4 mm long, the calluses with hairs about 1/2 the lemma length; anthers 0.5-1.2 mm long.

VENTENATA

***Ventenata dubia* (Leers) Coss. & Dur.**

ventenata

HABITAT/RANGE:

Mesic to dry roadsides in the lowland zone; rare in SW BC (lower Fraser Valley); introduced from S Eurasia.

DESCRIPTION:

General: Annual grass from fibrous roots, smooth to short-hairy, basally branched; stems mostly 30-70 cm tall.

Leaves: Sheaths usually minutely rough but sometimes soft-hairy; blades flat but becoming in-rolled, usually smooth on the upper surfaces but rough on the lower ones, 1-3 mm wide; ligules smooth, rounded, usually jagged, 1-8 mm long.

Flowers: Inflorescence an open panicle, 10-40 cm long, the branches spreading to drooping; spikelets usually 3-flowered; glumes sometimes awn-tipped, the lower ones 6- or 7-nerved, 5-6.5 mm long, the upper ones 8- or 9-nerved, 7-9 mm long; lower lemmas slightly exceeding the glumes, awned from long-pointed tips, the awns 1-3 mm long; upper 1 or 2 lemmas with bristlelike teeth, the teeth 1.5-2 mm long, awned, the awns attached on the backs, twisted and abruptly bent, 10-16 mm long; lodicules about 0.7 mm long; anthers about 1.3 mm long.

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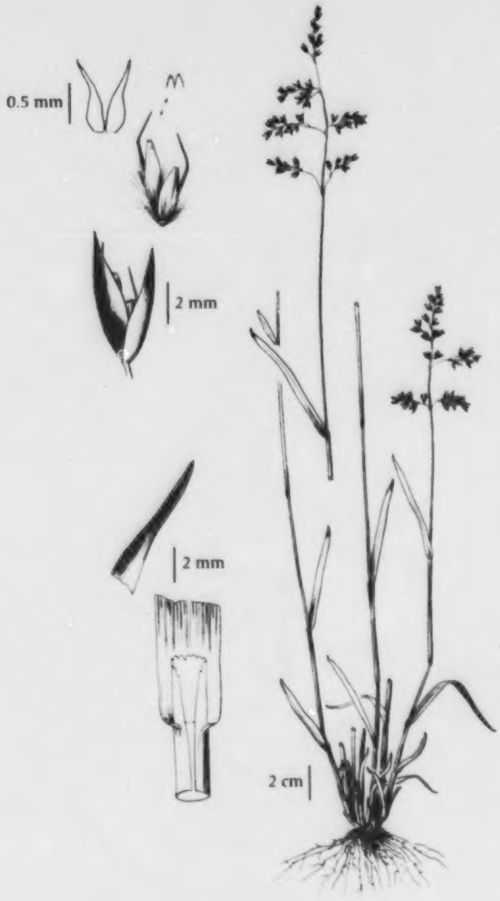
[22] Contributed by S.J. Darbyshire.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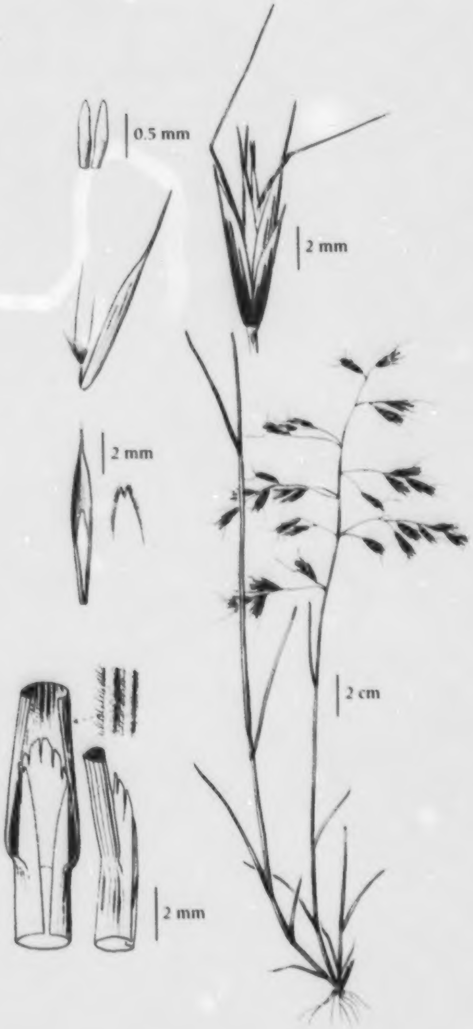
Vahlodea atropurpurea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Ventenata dubia

VULPIA[23]

1. Lower glumes less than 1/2 the length of upper glumes, often greatly reduced and scale-like .... *V. myuros*

1. Lower glumes more than 1/2 the length of upper glumes.

    2. Spikelets with 5 to 11 (17) florets, the florets closely overlapping, the rachilla internodes usually 0.5-0.7 mm long; lemma awns (0.3) 1.5-4.5 (9) mm long .... *V. octoflora*

    2. Spikelets with 1 to 5 (8) florets, the florets more loosely overlapping, the rachilla internodes about 1 mm long; lemma awns (3) 5-17 (22) mm long.

        3. Mature inflorescence open, the lower panicle branches and spikelet stalks spreading or directed backward and the base with callus-like swellings in the axils at maturity .... *V. microstachys*

        3. Mature inflorescence contracted, the lower panicle branches and spikelet stalks erect or appressed and the base without callus-like swellings in the axils at maturity .... *V. bromoides*

Vulpia bromoides **(L.) S.F. Gray** (*Festuca bromoides* L., *F. dertonensis* [All.] Asch. & Graebn.)
barren fescue

HABITAT/RANGE:

Mesic to dry outcrops, bluffs, open forests, roadsides and disturbed areas in the lowland zone; common in SW BC, rare in SC BC; introduced from Europe, W Asia and N Africa.

DESCRIPTION:

General: Annual, loosely tufted grass from fibrous roots; stems sometimes solitary, erect (sometimes bent or angled at the lower nodes), 5-30 (55) cm tall.

Leaves: Sheaths smooth or short-hairy; blades usually in-rolled (sometimes flat), smooth or short-hairy, up to 1.5 mm wide; ligules 0.2-0.6 mm long.

Flowers: Inflorescence an erect panicle, 2-8 (15) cm long, contracted when mature, the lower branches (and spikelet stalks) erect or appressed; spikelets 5-10 mm long (excluding the awns), (3-) 4- to 6- (8-) flowered, the florets loosely overlapping; glumes smooth, the lower glumes 1-nerved, 3.5-5 (7) mm long, the upper glumes 3-nerved, 4.5-7 (8) mm long; lemmas smooth or short-hairy, lanceolate, 5.5-7.5 (8) mm long, the terminal awns (3) 5-12 (15) mm long; rachilla internodes about 1 mm long; anthers usually 1 (rarely 2 or 3), 0.3-0.5 (2) mm long.

Vulpia microstachys **(Nutt.) Munro** (*Vulpia confusa* Piper, *V. microstachys* var. *pauciflora* [Scribn.] Lonard and Gould, *V. pacifica* [Piper] Rydb., *V. reflexa* [Buckl.] Rydb.)
small fescue

HABITAT/RANGE:

Mesic to dry fields, rock slopes, roadsides and waste areas in the lowland and montane zones; frequent in SW BC, rare in SC BC; S to NM, AZ, and CA; South America.

DESCRIPTION:

General: Annual, loosely tufted grass from fibrous roots; stems sometimes solitary, erect (sometimes bent or angled at the lower nodes), (5) 15-35 (40) cm tall.

Leaves: Sheaths smooth or short-hairy; blades in-rolled or sometimes flat, smooth or short-hairy, to 1 mm wide; ligules 0.2-0.5 (1) mm long.

Flowers: Inflorescence an open panicle (sometimes reduced to a raceme), the lower branches (and spikelet stalks) spreading or directed backward, (3) 5-11 (14) cm long, the base with callus-like swellings in the axils at maturity; spikelets 4-9 mm long (excluding awns), (1-) 2- to 6- (7-) flowered, the florets loosely overlapping; glumes smooth or short-hairy, the lower glumes 1-nerved, (1.7) 3-6 mm long, the upper glumes 3-nerved, (3.5) 5-8 mm long; lemmas smooth or short-hairy, lanceolate, (3.5) 4.5-7.5 (8) mm long, the terminal awns (3) 6-13 (20) mm long; rachilla internodes about 1 mm long; anthers 1 (rarely 2 or 3), 0.3-3 (3.5) mm long.

Notes: Several dubious varieties are sometimes recognized based on the presence and distribution of hairs.

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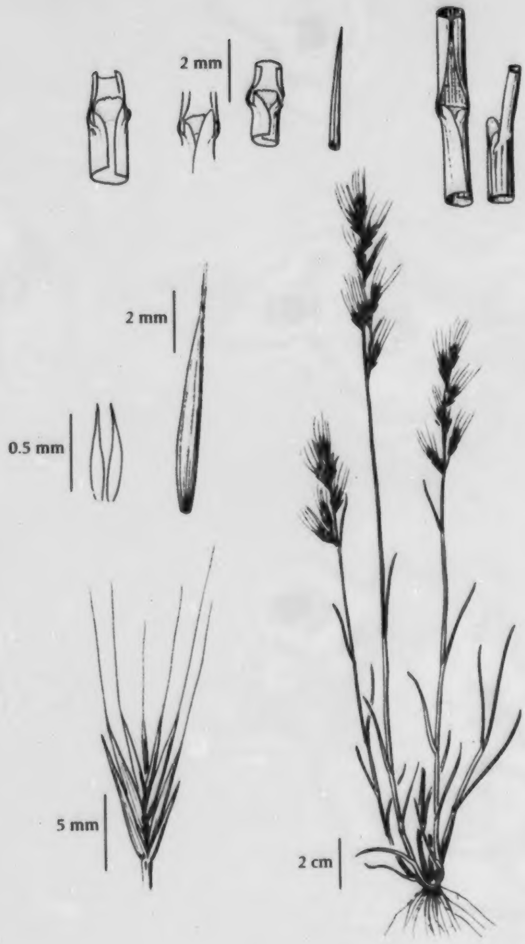
[23] Contributed by S.J. Darbyshire.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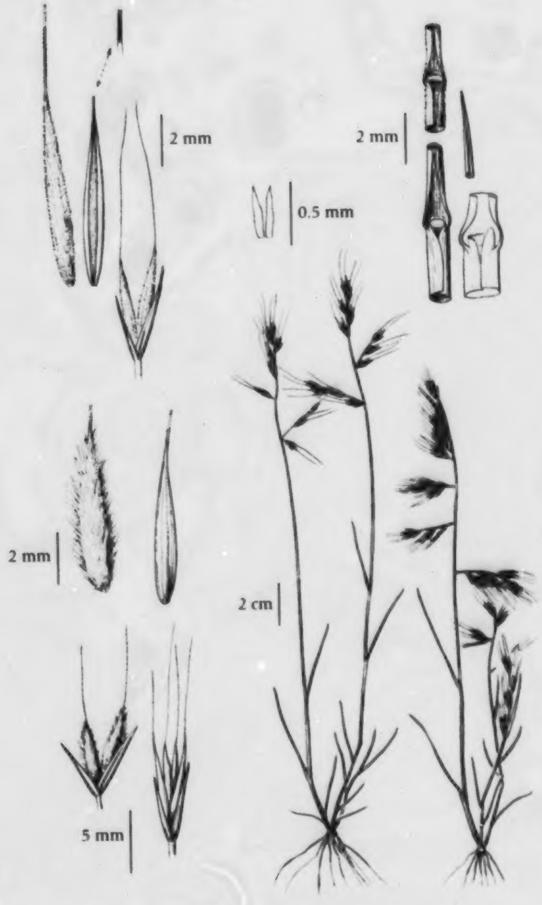
Vulpia bromoides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Vulpia microstachys

Vulpia myuros **(L.) Gmel.** (*V. megalura* [Nutt.] Rydb., *V. myuros* var. *hirsuta* [Hack.] Asch. & Graebn.)
rattail fescue

HABITAT/RANGE:

Mesic to dry fields, open areas, rocky ground, roadsides and waste areas in the lowland zone; common in SW BC; introduced from Eurasia and N Africa.

DESCRIPTION:

General: Annual, loosely tufted grass from fibrous roots; stems sometimes solitary, erect (sometimes bent or angled at the lower nodes), (5) 10-60 (90) cm tall.

Leaves: Sheaths all smooth or the lower ones hairy; blades rolled or sometimes flat, usually smooth or short-hairy on top, 0.5-3 mm wide; ligules 0.2-0.6 mm long.

Flowers: Inflorescence an erect panicle (sometimes reduced to a raceme), (3) 5-18 (25) cm long, often partly enclosed by the sheaths at maturity; spikelets 5.5-12 mm long (excluding the awns), 3- to 5- (8-) flowered; glumes smooth or short-hairy, the lower glumes smooth, 1-nerved, often greatly reduced, scale-like, 0.2-1.5 (2.5) mm long, the upper glumes 1- to 3-nerved, 2.5-5.5 mm long; lemmas smooth or hairy toward the tips, lanceolate, 4.5-7.5 mm long, the terminal awns (5) 8-15 (22) mm long; anthers 1 (rarely 2 or 3), 0.5-1.5 mm long.

Vulpia octoflora **(Walt.) Rydb.** (*Festuca octoflora* Walt., *F. octoflora* var. *glauca* [Nutt.] Fern.
six-weeks fescue

HABITAT/RANGE:

Mesic to dry slopes and plains, open forests, roadsides and disturbed areas in the lowland and montane zones; frequent in SC and SE BC; E to PQ and NB and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ, CA and MX.

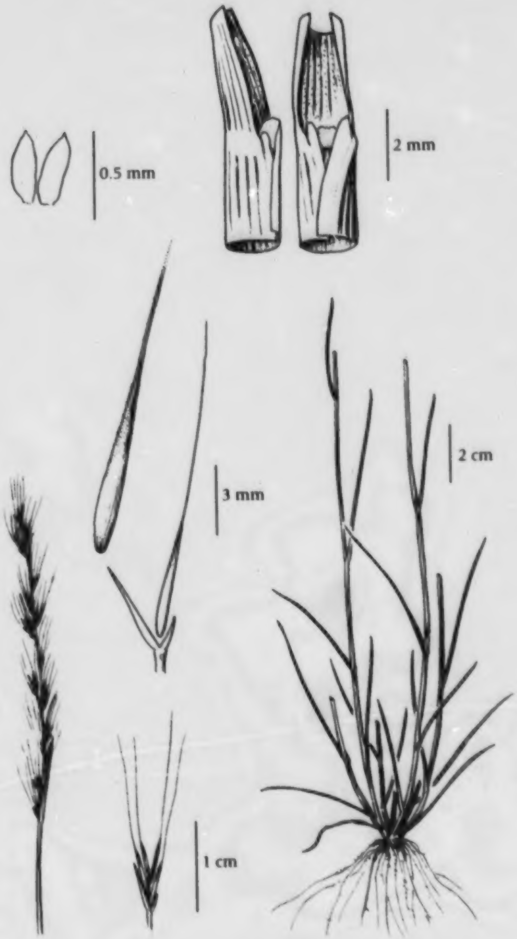
DESCRIPTION:

General: Annual, loosely tufted grass from fibrous roots; stems sometimes solitary, erect (sometimes bent or angled at the lower nodes), (3) 6-30 (60) cm tall.

Leaves: Sheaths smooth or the lower ones usually short-hairy with the hairs directed downward; blades flat or rolled, smooth or short-hairy, to 1 mm wide; ligules 0.2-0.7 mm long.

Flowers: Inflorescence a narrowly erect panicle (sometimes reduced to a raceme), (1) 2-7 (20) cm long; spikelets 4-10 mm long (excluding the awns), 5- to 11- (17-) flowered, the florets closely overlapping; glumes smooth or short-hairy, the lower glumes 1- to 3-nerved, (1.7) 2-4.5 mm long, the upper glumes 3-nerved, (2.7) 3.5-5.5 (6.7) mm long; lemmas smooth or short-hairy, lanceolate, 2.7-5 (6.5) mm long, the terminal awns (0.3) 1.5-4.5 (9) mm long; rachilla internodes usually 0.5-0.7 mm long; anthers 1 (rarely 2 or 3), (0.3) 1-3.3 mm long.

Notes: Three poorly separated varieties are sometimes recognized on the basis of floret size and hairiness. All of these phases can be found in BC.


0.5 mm
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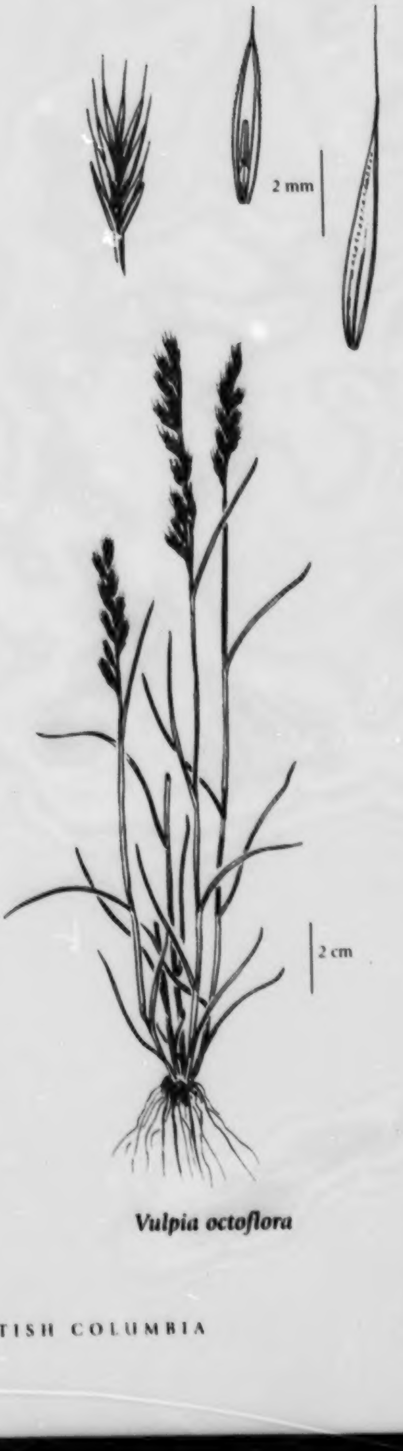
2 cm
1 cm

Vulpia myuros



Vulpia octoflora

ZIZANIA

Zizania aquatica **L.**

wild rice

HABITAT/RANGE:

Marshes, ponds and lakeshores in the lowland and montane zones; rare in SW and SC BC; introduced from E North America

DESCRIPTION:

General: Annual grass from fibrous roots; stems with nodes and collars hairy, 100-300 cm tall.

Leaves: Sheaths open, prominently cross-nerved; blades flat, 6-40 mm wide; ligules blunt to pointed, entire to more often ragged, 4-15 mm long, smooth externally, marked in front by the upturned margins of the blades.

Flowers: Inflorescence a large panicle, 20-50 cm long; spikelets linear, falling entire, 1-flowered, either male or female, the male spikelets lowermost in inflorescence, somewhat compressed, not hardened, 6-8 mm long, the lemmas 5-nerved, long-pointed to awn-tipped, the anthers 6-7 mm long, the female spikelets nearly circular in cross-section, tapered but strongly angled, hardened, 10-14 (in fruit 20) mm long, hairy towards the tips, tapered into awns 6-40 mm long; glumes apparently lacking, but often at least one of them vestigial in the male spikelet; paleas as long as the lemmas except for the awns; lodicules 2, bilobed, about 0.6 mm long.

PONTEDERIACEAE

ZOSTERELLA

Zosterella dubia **(Jacq.) Small** (*Heteranthera dubia* [Jacq.] MacMill.)

water star-grass; water star-weed

HABITAT/RANGE:

Ponds, lakeshores and slow-moving streams in the steppe and montane zones; infrequent in SW and SC BC; disjunct to MB and E to PQ and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ, MX and CA; S America.

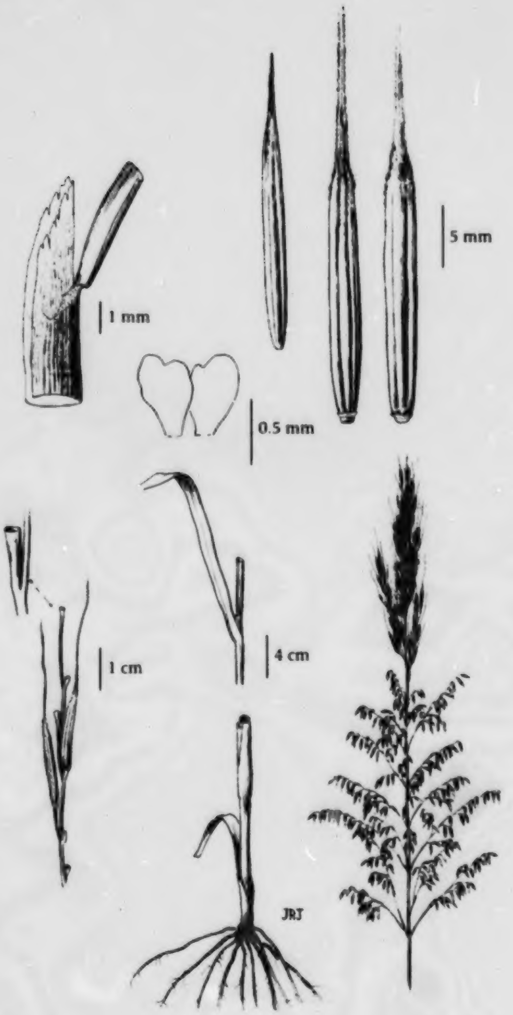
DESCRIPTION:

General: Perennial, aquatic herb from slender roots, rooting at the nodes; stems flaccid, usually submerged, 30-100 cm long.

Leaves: Stem leaves linear, alternate, 7-15 cm long, (1) 2-5 mm wide, the tips rounded; stipules membranous.

Flowers: Inflorescence of solitary, terminal, pale yellow flowers emerging from an axillary tubular bract (spathe); perianth tubes slender, 2-4 cm long; perianth segments (tepals) linear, about 5 mm long; stamens 3, slightly shorter than the perianth segments.

Fruits: Capsules; seeds numerous, many-ribbed.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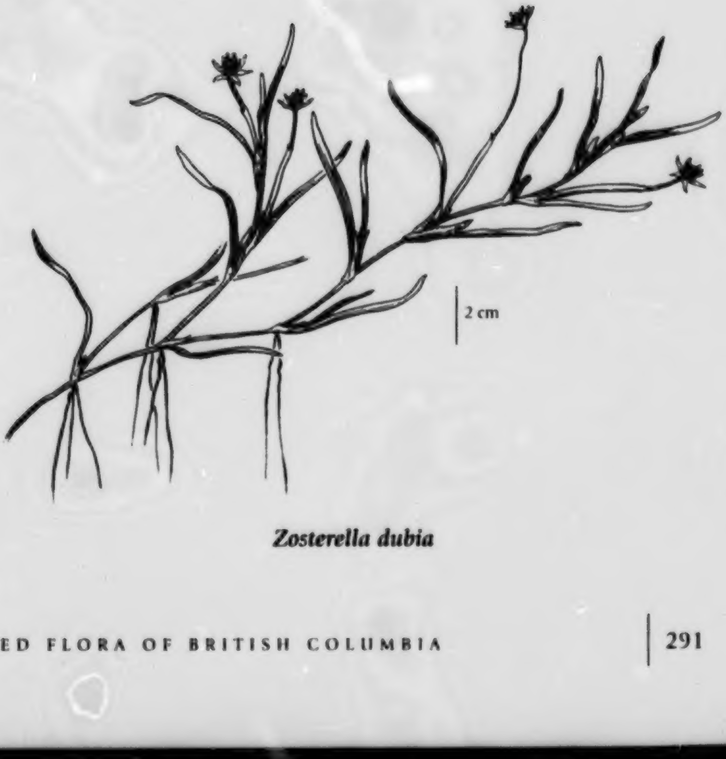
Zizania aquatica



Zosterella dubia

POTAMOGETONACEAE[24]

1. **Stipules forming a sheath around the stem only above the base of the leaf blade; leaves attached at the stem nodes** .... ***Potamogeton***

1. **Stipules forming a sheath around the stem partly below the base of the leaf blade and partly above; leaves attached 10 mm or more above the stem nodes.**

   2. **Leaves flat, with 10 to 20 veins** .... ***Potamogeton (P. robbinsii)***

   2. **Leaves cylindrical, with 1 to 5 veins** .... ***Stuckenia***

POTAMOGETON

Species of the genus *Potamogeton* are variable and difficult to identify. For reliable identification try to collect specimens with fruits.

Stem anatomy provides a guide for identification of broad-leaved pondweeds, if you have access to a compound microscope. These characters can be used only for the broad-leaved species, since the narrow-leaved pondweeds have stem anatomy much simplified without any anatomical features useful for species identification. Several anatomical characters are utilized in the key:

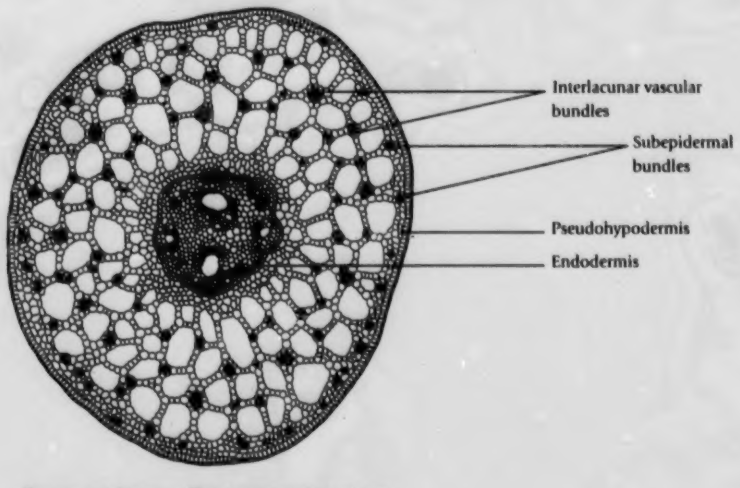
Interlacunar vascular bundles - vascular bundles within the aerenchyma of the stem. They can be absent (e.g., *P. alpinus, P. nodosus,* and *P. richardsonii*), present in one circle (e.g., *P. gramineus, P. oakesianus, P. illinoensis*), or well-developed throughout the aerenchyma (e.g., *P. amplifolius, P. natans, P. praelongus*).

Subepidermal bundles - vascular bundles that are situated directly below the epidermis or pseudohypodermis; an additional useful character in species with interlacunar bundles well developed (e.g., present in *P. natans*, absent in *P. amplifolius*).

Pseudohypodermis - one or two layers of cells directly below epidermis; it can be absent in certain species (e.g., in *P. alpinus*).

Endodermis - a single layer of cells with thickened cell walls separating the central vascular bundles from aerenchyma. The cells of endodermis are either U-shaped (e.g., *P. gramineus*) or O-shaped (e.g., *P. illinoensis*).

To view these anatomical characters, make a razor blade section of a stem from an area between the nodes and examine using a compound microscope under 40-100x magnification. Pieces of stem from dried herbarium specimens can be softened in hot water. For more information on the use of anatomical characters see Ogden (1943) and Wiegleb (1990).



Stem anatomy, *Potamogeton natans*

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[24] Contributed by A. Ceska.

Achenes also provide a good guide for identification of pondweeds. Achene size, presence or absence of a beak at the tip of the achene and development of a keel at the dorsal side of the fruit are the main characters used in this key. For more on fruit morphology of pondweeds see Aalto (1970).

1. Plants with all leaves linear, less than 10 mm wide, the sides parallel, unstalked.
   2. Leaves with two translucent bands along the midveins, the bands more than 2 cells wide.
      3. Translucent bands of the submersed leaves forming about 1/3 of the leaf width; leaves 2-ranked; stems flattened .... *P. epihydrus*
      3. Translucent bands of the submersed leaves forming less than 1/3 of the leaf width; leaves not 2-ranked; stems circular in cross-section .... *P. pusillus* ssp. *tenuissimus*
   2. Leaves without translucent bands along the midveins or with translucent bands only 1 or 2 cells wide.
      4. Submersed leaves with 9 to 35 veins.
         5. Leaves attached about 5-10 mm above the nodes, with distinct ear-shaped lobes at the bases .... *P. robbinsii*
         5. Leaves attached at the nodes, without ear-shaped lobes at the bases.
            6. Tips of the leaves pointed, leaf margins straight and smooth .... *P. zosteriformis*
            6. Tips of the leaves rounded, leaf margins wavy, with tiny teeth .... *P. crispus*
      4. Submersed leaves with 1 to 7 veins.
         7. Stipules coarsely fibrous, whitish, the older tending to disintegrate into shreds; bases of winter buds hard and strongly ribbed.
            8. Leaves blunt or rounded and more or less abruptly slender-tipped, not conspicuously 2-ranked; blades thin, with 5 to 7 veins, and with narrow cellular-net-veined bands along the midveins; winter buds fan-shaped .... *P. friesii*
            8. Leaves gradually tapered into sharp bristle tips, conspicuously 2-ranked; blades firm, with 3 to 5 veins, and without any cellular-net-veined bands along the midveins; winter buds cylindrical .... *P. strictifolius*
         7. Stipules delicate, not fibrous, greenish or brownish; base of winter buds soft and smooth.
            9. Leaves 2-4 mm wide, rounded at the tips; fruits 3-4 mm long .... *P. obtusifolius*
            9. Leaves 0.3-3 mm wide, tapered to pointed tips or abruptly slender-tipped; fruits 1.8-2.8 mm long.
               10. Fruits with distinct keels on their backs; veins on stipules evident as ridges running the entire length of the stipules; glands at the base of stipules either lacking or poorly developed .... *P. foliosus*
               10. Fruits without keels on their backs; veins on stipules obscure and faint; glands at the base of stipules usually well-developed .... *P. pusillus*
1. Plants with at least some of the leaves lanceolate or egg-shaped, the larger ones more than 9 mm wide.
   11. Submersed leaves tapering into distinct stalks greater than 0.5 cm long.
       12. Submersed leaves folded and strongly sickle-shaped, with more than 27 veins; interlacunar bundles strongly developed throughout .... *P. amplifolius*
       12. Submersed leaves flat and not sickle-shaped, with less than 27 veins; interlacunar bundles developed only in 1 circle or absent.
           13. Stalks of submersed leaves less than 2 cm long; submersed leaves tapered to sharp tips; interlacunar bundles well-developed, forming 1 circle; endodermis of U-cells .... *P. illinoensis*
           13. Stalks of submersed leaves more than 2 cm long; submersed leaves tapered to blunt tips; interlacunar bundles absent; endodermis of O-cells .... *P. nodosus*
   11. Submersed leaves unstalked or with stalks less than 0.5 cm long.
       14. Submersed leaves cylindrical, nearly circular in cross-section, tapered.

15. Floating leaves 2.5-6 cm wide, usually heart-shaped at the base, the larger ones with (18) 20 to 35 veins; submersed leaves growing from the main stem; interlacunar vascular bundles in several circles throughout the aerenchyma, subepidermal bundles present; mature fruits (including beaks) 3.5-5 mm long, obscurely keeled .... *P. natans*

15. Floating leaves 1-3 cm wide, usually rounded or wedge-shaped at the base, the largest ones with 11 to 19 veins; submersed leaves growing from the branches of the main stem; interlacunar bundles developed only in the outer interlacunar circle of the aerenchyma, subepidermal bundles absent; mature fruits (including beaks) 2.5-3.5 mm long, prominently keeled .... *P. oakesianus*

14. Submersed leaves flat.

16. Submersed leaves ribbon-like with parallel sides, 5-10 mm wide; parallel-sided median translucent band several cells wide and comprising 1/4 or more of the total leaf width; stems compressed .... *P. epihydrus*

16. Submersed leaves lanceolate to egg-shaped in outline; translucent bands absent or less than 1/4 of the blade width; stems nearly circular in cross-section.

17. Submersed leaves clasping the stem.

18. Leaves cylindrical to egg-shaped in outline, mostly 10-20 cm long, with hood-shaped tips; fruits more than 4 mm long; stems with many interlacunar vascular bundles ...... *P. praelongus*

18. Leaves lanceolate, circular, egg-shaped, or narrowly egg-shaped in outline, 1-10 cm long, without hood-shaped tips; fruits less than 3.5 mm long; stems lacking interlacunar vascular bundles.

19. Stipules coarse, disintegrating into persistent whitish fibers that remain even on old plants; leaves lanceolate to egg-shaped in outline; inflorescence stalks club-shaped, 1.5-25 cm long *P. richardsonii*

19. Stipules very delicate, present only on young plants and soon falling off; leaves egg-shaped to circular in outline; inflorescence stalks not club-shaped, 1-9 cm long .... *P. perfoliatus*

17. Submersed leaves not clasping the stem.

20. Stems and leaves with reddish tinge, stems usually not branched; floating leaves, if present, not markedly different from the submersed; interlacunar bundles absent; endodermis of O-cells .... *P. alpinus*

20. Stems and leaves greenish, stems freely branched; floating leaves markedly different from submersed; interlacunar bundles well developed in one circle; endodermis of U-cells .... *P. gramineus*

Potamogeton alpinus **Balbis** (*P. tenuifolius* Raf., *P. alpinus* var. *subellipticus* [Fern.] Ogden)
northern pondweed

HABITAT/RANGE:

Nutrient-poor lakes and sloughs in the lowland, steppe and montane zones; frequent throughout BC; circumpolar, N to AK, YT, NT, E to NF and S to ME, NH, NY, MI, WI, MN, SD, CO, UT, NV and CA; Eurasia.

DESCRIPTION:

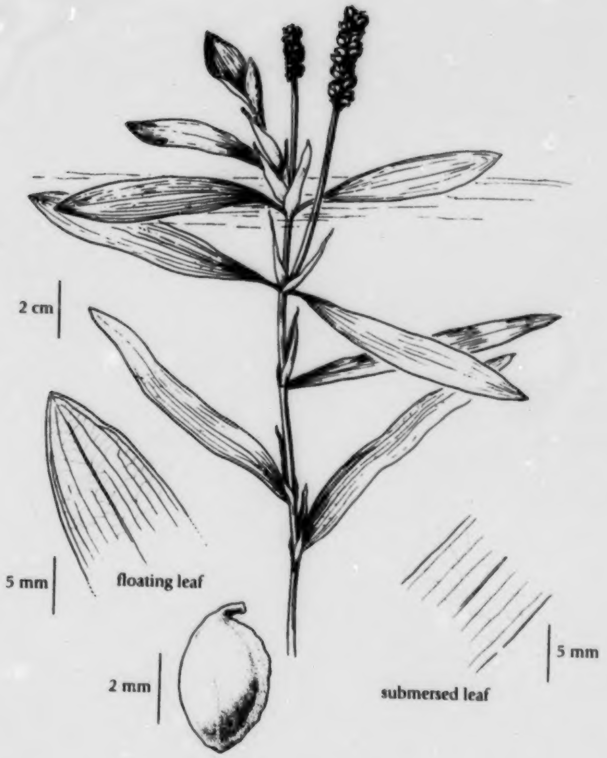
General: Perennial, aquatic herb from strong rhizomes; stems mostly unbranched or sparingly branched, with a reddish tinge, nearly circular in cross-section, tapered, up to 200 cm long.

Leaves: Submersed leaves flat, thin, linear-lanceolate, 4-10 cm long, 5-20 mm wide, with 7 to 9 veins, unstalked, not clasping the stem, the stipules 1.5-2.5 cm long, thin, membranous, persistent; floating leaves, if developed, lanceolate, 3-8 cm long, 2-5 cm wide, gradually tapered into stalks.

Flowers: Inflorescence spikelike, the spikes 1-3.5 mm long, with 5 to 10 whorls of flowers, the stalks thick.

Fruits: Achenes, egg-shaped, 3-3.5 cm long, 2-2.4 mm wide, slightly compressed at their sides, the beaks long, often curved, the dorsal keels narrow, prominent, the lateral keels obscure.

Notes: Stem anatomical characters: Interlacunar and subepidermal bundles lacking, pseudohypodermis lacking, endodermis of O-cells.


2 cm
5 mm
floating leaf
2 mm
5 mm
submersed leaf

Potamogeton alpinus

Potamogeton amplifolius **Tuckerman**

large-leaved pondweed

HABITAT/RANGE:

Lakes and ponds in the lowland and montane zones; frequent in SW BC, infrequent E of the Coast-Cascade Mountains south of 55°N; disjunct E from MB to NF and S to ME, PA, NC, GA, AL, MS, LA, OK, CO, UT, NV and CA.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems mostly unbranched, up to 200 cm long.

Leaves: Submersed leaves widely lanceolate, 8-20 cm long, 2-7 cm wide, with 27 to 50 veins, tapering into distinct, short stalks greater than 0.5 cm long, folded and curved backwards, strongly sickle-shaped, the tips pointed, the stipules 3-10 cm long, thin, persistent; floating leaves egg-shaped, 5-10 cm long, 2-4 cm wide, leathery, the stalks long, thick, the tips rounded, tapered at the bases.

Flowers: Inflorescence spikelike, the spikes 4-8 cm long, with 6 to 10 whorls of flowers, the stalks thick.

Fruits: Achenes, widely egg-shaped or almost globe-shaped, 5-6.7 mm long, 4.5-5.5 mm wide, the beaks widely triangular, the keels broad.

Notes: Stem anatomical characters: Interlacunar bundles strongly developed throughout the stem aerenchyma, subepidermal bundles absent, pseudohypodermis 1 or 2 cells thick, endodermis of O-cells.

Potamogeton crispus **L.**

curled pondweed

HABITAT/RANGE:

Nutrient rich lakes, ponds and sloughs in the lowland and steppe zones; common in S BC south of 50°N; introduced from Eurasia.

DESCRIPTION:

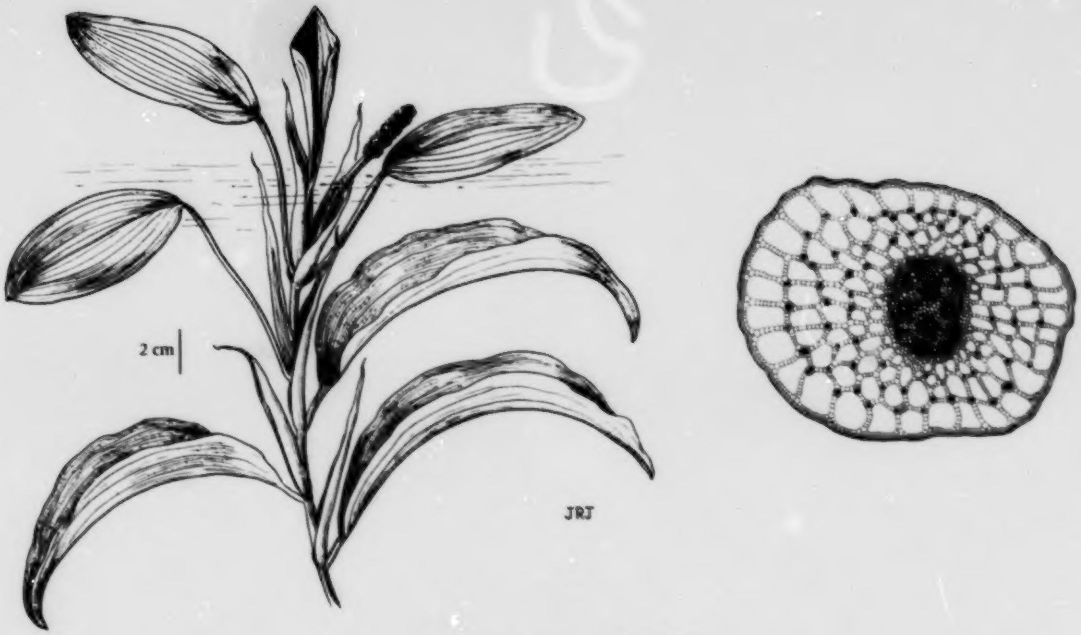
General: Perennial, aquatic herb from fibrous roots; stems compressed, branched, up to 150 cm long.

Leaves: All submersed, narrowly oblong with parallel sides, 1-10 cm long, 0.4-1 cm wide, with 9 to 35 veins, attached at the nodes, the tips rounded, the bases rounded and toothed, the margins wavy, with tiny teeth, dark green and crispy, stipules inconspicuous, 0.5 cm long.

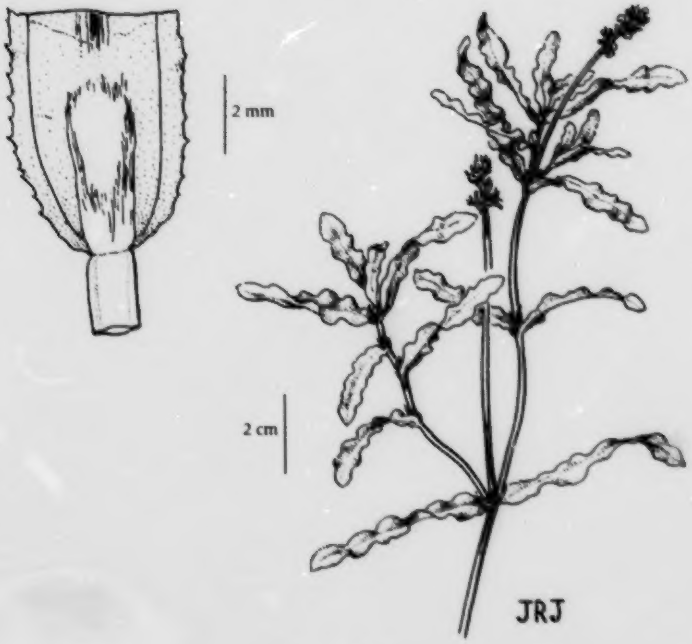
Flowers: Inflorescence spikelike, the spikes 2.5-4 cm long, with 3 to 5 whorls of flowers, the stalks thin.

Fruits: Achenes, lanceolate, 5-6 mm long (including the beaks), 2-2.3 mm wide, the beaks 2-3 mm long, prominent, pointed, the keels well-developed, toothed.

Notes: Stem anatomical characters: Interlacunar and subepidermal bundles absent, pseudohypodermis 1 cell thick, endodermis of O-cells.



Potamogeton amplifolius



Potamogeton crispus

Potamogeton epihydrus **Raf.** (*P. nuttallii* Cham. & Schlecht., *P. epihydrus* var. *ramosus* [Peck] House)

ribbon-leaf pondweed

HABITAT/RANGE:

Peaty lakes, ditches and ponds from the lowland and steppe to subalpine zones; common in coastal BC, infrequent E of the Coast-Cascade Mountains; N to AK, disjunct E from SK to NF and S to ME, PA, NC, GA, AL, MS, LA, SD, CO, UT, NV and CA; in Europe only at Outer Hebrides.

DESCRIPTION:

General: Perennial, aquatic or semi-terrestrial herb from strong rhizomes; stems up to 100 cm long, flattened, compressed, usually not branched.

Leaves: Submersed leaves ribbon-like, thin, the sides parallel, whitish-green, 1-20 cm long, 3-7 mm wide, unstalked, the tips pointed, with broad translucent bands along the midveins (totalling about 1/3 of the leaf width) and with 3 to 13 veins, the stipules 0.5-3 cm long, inconspicuous; floating leaves 1-7 cm long, 0.5-2 cm wide, leathery, long-stalked, lanceolate to elliptic, the tips pointed, tapering at the bases.

Flowers: Inflorescence spikelike, the spikes 2-4 cm long, with 5 to 12 whorls of flowers, the stalks thin.

Fruits: Achenes, almost globe-shaped, 2.5-4.5 mm long, 2-3 mm wide, flattened, beakless, the keels pronounced, winged.

Potamogeton foliosus **Raf.** (*P. foliosus* var. *macellus* Fern.)

closed-leaved pondweed

HABITAT/RANGE:

Lakes, ponds and ditches in the lowland, steppe and montane zones; frequent in BC south of 55°N, rare in N BC, N to AK and YT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA; Mexico.

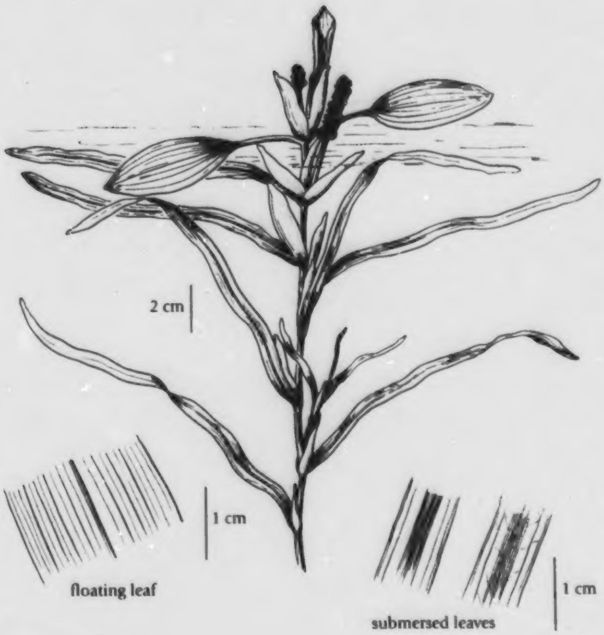
DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, extensively branched.

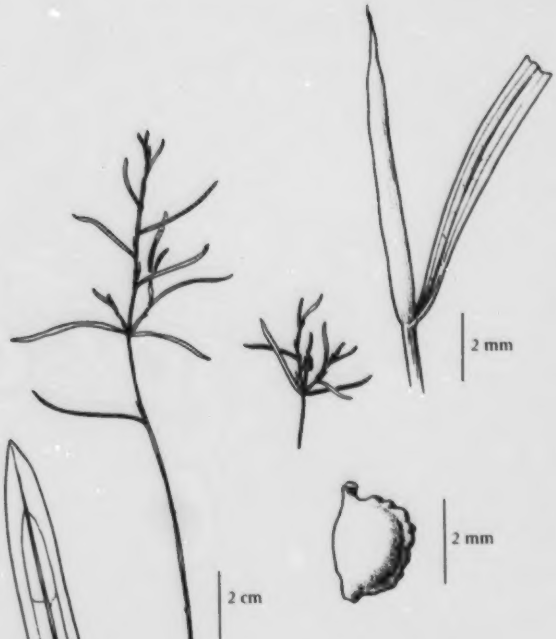
Leaves: All submersed, linear, the sides parallel, thin, green, 1-9 cm long, 0.3-2.5 mm wide, usually with 3 veins, unstalked, the tips pointed, the stipules 0.5-1 cm long, delicate, not fibrous, greenish or brownish, the margins fused towards the bases, the veins evident as ridges running the entire length, the glands either lacking or poorly developed.

Flowers: Inflorescence spikelike, the spikes 0.5-1.5 cm long, with 2 to 5 whorls of flowers, the stalks thin; bases of winter buds soft, smooth.

Fruits: Achenes, egg-shaped, 1.5-2.5 mm long, 1.2-2 mm wide, widest in the middle, the beaks short stubby, the keels strongly developed, winged.


2 cm
1 cm
floating leaf
1 cm
submersed leaves

Potamogeton epihydrus


2 mm
2 mm
1 mm
2 cm

Potamogeton foliosus

Potamogeton friesii **Rupr.** (*P. compressus auct. non* L.)

flat-stalked pondweed

HABITAT/RANGE:

Lakes, ponds and ditches in the lowland, steppe and montane zones; frequent in BC east of the Coast-Cascade Mountains, infrequent in coastal BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, OH, IN, IL, IA, NE, WY, UT, ID, and WA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, sparsely branched.

Leaves: All submersed, linear, the sides parallel, rigid, light to olive-green, 2.5-7 cm long, 1.2-3.5 mm wide, usually with 5 to 7 veins and narrow translucent bands (1 or 2 cells wide) along the midveins, blunt or rounded and slightly abruptly slender-tipped, the tips pointed, the stipules 0.5-2 cm long, coarsely fibrous, whitish, the tips shredding, the margins overlapping, basal glands present.

Flowers: Inflorescence spikelike, the spikes 0.5-1.5 cm long, with 2 to 5 whorls of flowers, the stalks thin; winter buds fan-shaped, the bases hard, strongly ribbed.

Fruits: Achenes, egg-shaped, 1.5-2.5 mm long, 1.2-2 mm wide, widest above the middle, the beaks short, the keels low and rounded.

Potamogeton gramineus **L.** (*P. gramineus* var. *maximus* Morong, *P. gramineus* var. *myriophyllus* Robbins, *P. heterophyllus* Schreber)

grass-leaved pondweed

HABITAT/RANGE:

Lakes, lake margins, ponds in peat bogs, ditches and slowly flowing streams and rivers in all but the alpine zone; frequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, WV, OH, IN, IL, IA, NM, AZ and CA; Eurasia.

DESCRIPTION:

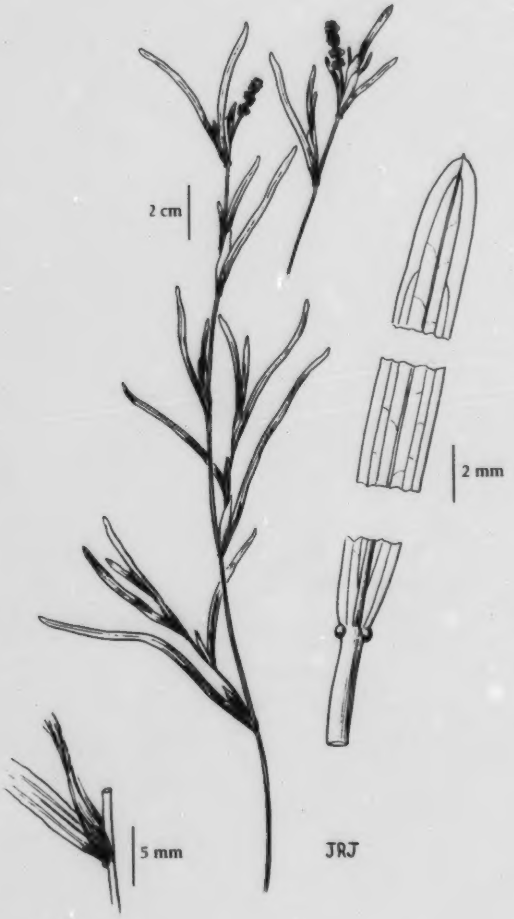
General: Perennial, aquatic or semi-terrestrial herb from strong rhizomes; stems up to 150 cm long, freely branched, nearly circular in cross-section, tapered.

Leaves: Submersed leaves narrowly lanceolate, thin, flat, green, 2-7 cm long, 0.5-2.5 cm wide, unstalked, not clasping the stem, the tips rounded or pointed, the stipules 0.5-3 cm long; floating leaves markedly different from the submersed ones, lanceolate to elliptical, thick and leathery, 2-10 cm long, 1-4 cm wide, long-stalked, the tips pointed, tapering at the bases.

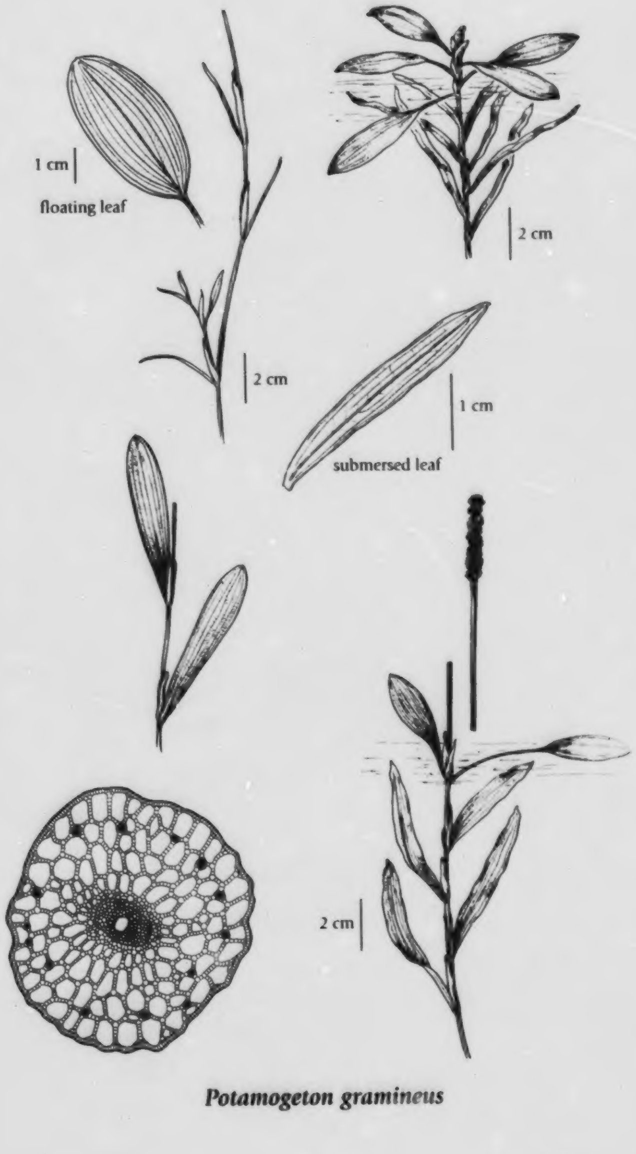
Flowers: Inflorescence spikelike, the spikes 1-2.5 cm long, with 5 to 10 whorls of flowers, the stalks thin.

Fruits: Achenes, almost globe-shaped, 1.7-2.5 mm long, 1.6-2 mm wide, the beaks short, the keels sharp and prominent.

Notes: Stem anatomical characters: Interlacunar bundles present in 1 circle, subepidermal bundles present or absent, pseudoepidermis absent or 1 cell thick, endodermis of U-cells. A highly variable species with several varieties described in N America based on stem branching and size of submersed leaves (e.g. var. *maximus* Morong *ex* A. Benn., var. *myriophyllus* Robbins). Their taxonomic recognition is questionable. *Potamogeton gramineus* hybridizes with *P. natans* and without examining stem anatomical characters, this hybrid (*P. sparganiifolius* Laest. *ex* Fries) can easily be misidentified as *P. nodosus*.


2 cm
2 mm
5 mm
JRJ

Potamogeton friesii


1 cm
floating leaf
2 cm
2 cm
1 cm
submersed leaf
2 cm

Potamogeton gramineus

Potamogeton illinoensis **Morong**

Illinois pondweed

HABITAT/RANGE:

Lakes and slowly flowing streams in the steppe zone; infrequent in S BC east of Coast-Cascade Mountains; N to NT, disjunct E from MB to PQ and NS and S to ME, MA, PA, NC, FL, MS, TX, NM, AZ and CA.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems up to 200 cm long, usually branched.

Leaves: Submersed leaves elliptical to widely lanceolate, thin, flat, intense yellow-green, 8-20 cm long, 2-5 cm wide, with 7 to 19 veins, the tips sharp-pointed, tapering into long stalks at the bases, the stalks less than 2 cm long, the stipules 2.5-8 cm long; floating leaves often absent, if present elliptical, 5-20 cm long, 2-7 cm wide, leathery, long-stalked, the tips pointed, tapering at the bases.

Flowers: Inflorescence spikelike, the spikes with 8 to 15 whorls of flowers, the stalks thick, inflated.

Fruits: Achenes, widely egg-shaped or almost globe-shaped, 2.5-3.6 mm long, 2.1-3 mm wide, the beaks widely triangular, the keels wide.

Notes: Stem anatomical characters: Interlacunar bundles strongly developed in 1 circle, often with few additional bundles in neighbouring circles, subepidermal bundles usually absent, pseudohypodermis absent or 1 cell thick, endodermis of U-cells.

Potamogeton natans **L.**

floating-leaved pondweed

HABITAT/RANGE:

Lakes and ponds from the lowland and steppe to subalpine zones; common throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, OH, IN, IL, IA, OK, NM, UT, AZ and CA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems up to 200 cm long, unbranched.

Leaves: Submersed leaves reduced to narrow, firm, dark green cylindrical stalks without blades, growing from the main stem, 10-20 cm long, the stipules 4-9 cm long, fibrous; floating leaves egg-shaped, 3-10 cm long, 2.5-6 cm wide, the larger ones with (18) 20 to 35 veins, leathery, long-stalked, the tips rounded, notched at the bases.

Flowers: Inflorescence spikelike, the spikes with 6 to10 whorls of flowers, the stalks thick.

Fruits: Achenes, broadly egg-shaped, 3.5-5 mm long, 2.5-3.5 mm wide, the beaks cylindrical, the keels obscure, developed in the upper half of achenes.

Notes: Stem anatomical characters: Interlacunar bundles present throughout the stem aerenchyma in several circles, subepidermal bundles present, pseudohypodermis 1-cell thick, endodermis of U-cells.

Potamogeton nodosus **Poir.**

long-leaved pondweed

HABITAT/RANGE:

Lakes and sloughs of the lowland zone; rare in the lower Fraser River Valley and in the Okanagan Valley, doubtful elsewhere; cosmopolitan with disjunctions, E to PQ and NB and S to ME, MA, PA, NC, FL, MS, TX, NM, AZ and CA; Eurasia, Mexico, S America, Africa.

DESCRIPTION:

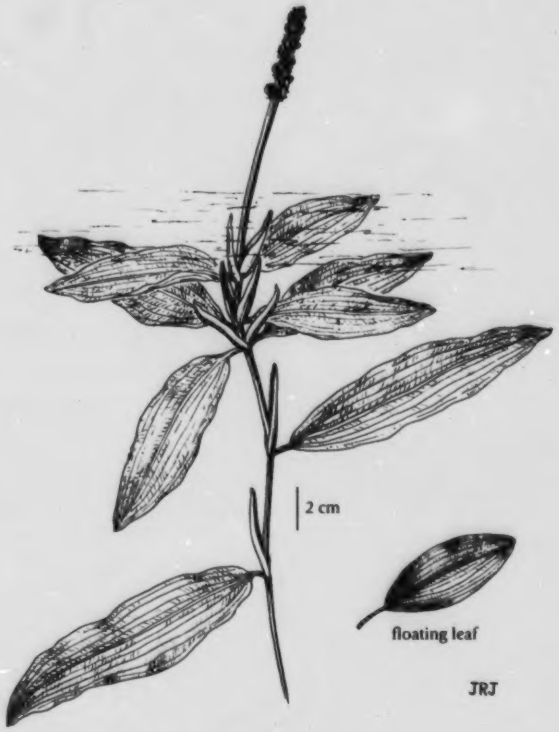
General: Perennial, aquatic herb from strong rhizomes; stems up to 150 cm long, simple or branched.

Leaves: Submersed leaves narrowly lanceolate, flat, leathery, dark green, 4-15 cm long, 1-4 cm wide, with 7 to 15 veins, the tips blunt, tapering into long stalks greater than 2 cm long, the stipules 3-6 cm long, delicate and early decaying; floating leaves lanceolate to elliptical, 5-20 cm long, 2-7 cm wide, leathery, long-stalked, the tips pointed, tapering at the bases.

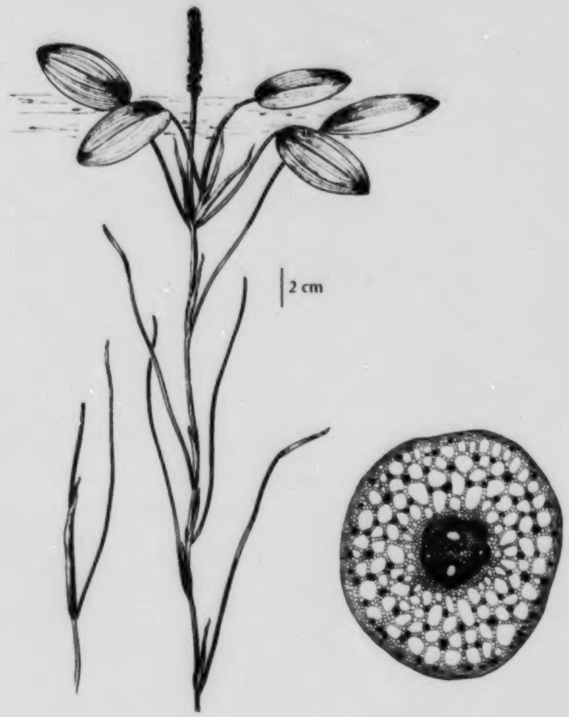
Flowers: Inflorescence spikelike, the spikes 3-6 cm long, with 10 to 16 whorls of flowers, the stalks thick, inflated.

Fruits: Achenes, widely egg-shaped or almost globe-shaped, 3.5-4 mm long, 2.5-3 mm wide, the beaks short, the keels strongly developed.

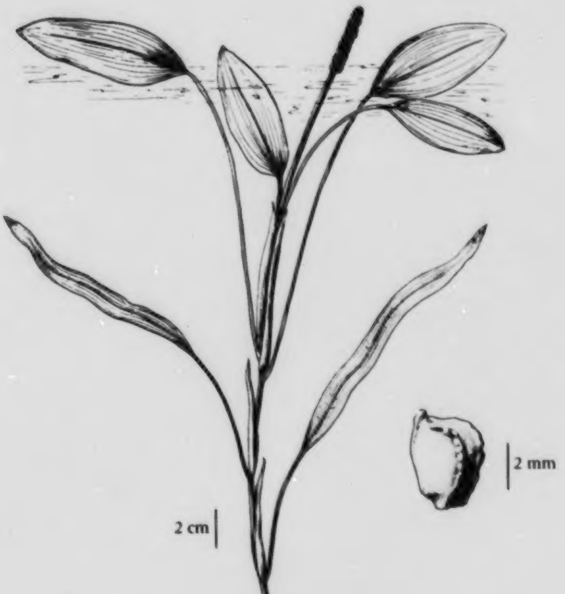
Notes: Stem anatomical characters: Interlacunar and subepidermal bundles absent, pseudohypodermis absent, endodermis of O-cells with variably thickened cell walls and approaching U-cells.


2 cm
floating leaf
JRJ

Potamogeton illinoensis



Potamogeton natans



Potamogeton nodosus

Potamogeton oakesianus **Robbins**

Oakes' pondweed

HABITAT/RANGE:

Lakes and ponds in the lowland and montane zones; rare in SW and SC BC, known only from Steelhead (near Vancouver) and Mara Lake; disjunct E to MB, E to NF and S to ME, MA, PA, SC, TN, WI, MN and MT.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems up to 100 cm long, branched.

Leaves: Submersed leaves reduced to narrow, firm, cylindrical stalks without blades, growing from the branches of the main stem, 5-15 cm long, the stipules 2-4 cm long, delicate, shredded with age; floating leaves egg-shaped, 3-5 cm long, 1-3 cm wide, the larger ones with 9 to 19 veins, leathery, long-stalked, the tips rounded, rounded or tapering at the bases.

Flowers: Inflorescence spikelike, the spikes 1.5-3 cm long, with 3 to 8 whorls of flowers, the stalks slightly inflated.

Fruits: Achenes, widely egg-shaped, 2.5-3.5 mm long, 2-2.4 mm wide, the beaks cylindrical, the keels obscure, developed in the upper half of achenes.

Notes: Stem anatomical characters: Interlacunar bundles strongly developed in the outer interlacunar circle of aerenchyma with some bundles scattered in the neighbouring circles, subepidermal bundles absent, pseudohypodermis absent or 1 cell thick, endodermis of U-cells.

Potamogeton obtusifolius **Mert. & Koch**

blunt-leaved pondweed

HABITAT/RANGE:

Lakes and sloughs in the lowland, steppe and montane zones; infrequent throughout BC; circumpolar, N to YT, E to ON, NS and NF and S to ME, MA, PA, NC, FL, AL, MI, and LA; Eurasia, Australia.

DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, sparsely branched.

Leaves: All submersed, linear, the sides parallel, soft, light to olive-green, 3-8 cm long, 2-4 mm wide, usually with 3 to 5 veins, the tips rounded, the stipules 0.5-2 cm long, delicate, not fibrous, greenish or brownish, not shredding at the tips, the margins overlapping.

Flowers: Inflorescence spikelike, the spikes 0.5-1.5 cm long, with 3 to 8 whorls of flowers, the stalks thin; bases of winter buds soft, smooth.

Fruits: Achenes, egg-shaped, 3-4 mm long, 1.5-2.5 mm wide, widest above the middle, the beaks short, the keels absent.

Potamogeton perfoliatus **L.**

perfoliate pondweed

HABITAT/RANGE:

Lakes in the montane zone; rare in N BC, known only from Swan Lake in the Cassiar Range; circumpolar, disjunct E to ON, PQ and NF and S to ME, MA, PA, NC, FL, AL, MI and LA; Eurasia.

DESCRIPTION:

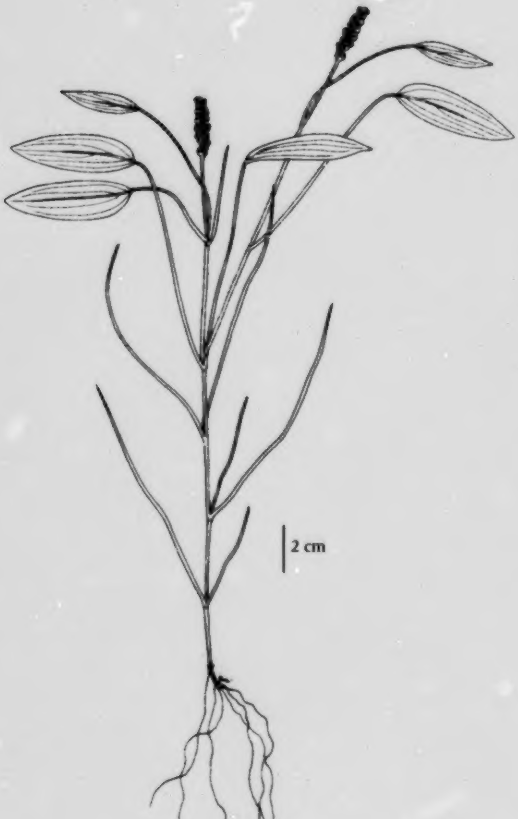
General: Perennial, aquatic herb from strong rhizomes; stems branched, up to 150 cm long.

Leaves: All submersed, broadly lanceolate to circular in outline, 1-6 cm long, 1-3 cm wide, with rounded tips, clasping the stem, thin; stipules 0.5-4 cm long, inconspicuous, soon deciduous.

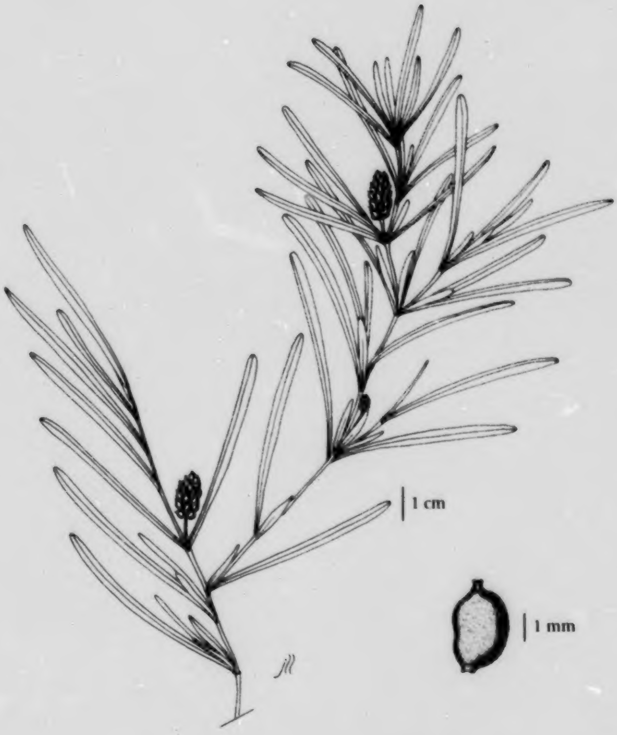
Flowers: Inflorescence spikelike, the spikes 1-2 cm long, with 2 to 8 whorls of flowers, the spike stalks inflated.

Fruits: Achenes, egg-shaped, 2.5-2.8 mm long, 2-2.3 mm wide, with prominent, cylindrical beaks, without keels.

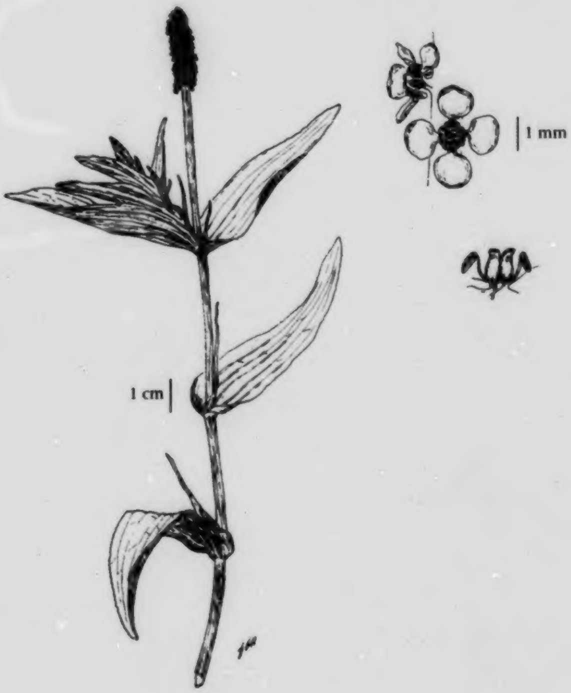
Notes: Stem anatomical characters: interlacunar bundles and subepidermal bundles absent, pseudohypodermis 1 cell thick, endodermis of O-cells.



Potamogeton oakesianus



Potamogeton obtusifolius



Potamogeton perfoliatus

Potamogeton praelongus **Wolfg.**

long-stalked pondweed

HABITAT/RANGE:

Lakes in the lowland, steppe and montane zones; frequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, NY, OH, IN, IL, IA, NE, CO, UT, ID and CA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems mostly unbranched, often flexuous, nearly circular in cross-section, tapered, up to 200 cm long.

Leaves: All submersed, linear-lanceolate, thin, flat, light green fading to white, 10-20 cm long, 2-4 cm wide, with 11 to 33 veins, clasping the stem, the tips rounded or hood-shaped, the stipules 3-10 cm long, fibrous or stringy; floating leaves absent.

Flowers: Inflorescence spikelike, the spikes 3-5 cm long, with 6 to 12 whorls of flowers, the stalks inflated.

Fruits: Achenes, widely egg-shaped or almost globe-shaped, 4.3-5.7 mm long, 3.2-4 mm wide, the beaks prominent, widely triangular, the keels wide.

Notes: Stem anatomical characters: interlacunar bundles throughout the stem aerenchyma, subepidermal bundles absent, pseudohypodermis 1 to 3 cells thick, endodermis of U-cells.

Potamogeton pusillus **L.** (*P. panormitanus* Biv., *P. pusillus* var. *minor* [Biv.] Fern. & Schub. = ssp. *pusillus*; *P. berchtoldii* Fieb. = ssp. *tenuissimus*)

small pondweed

HABITAT/RANGE:

Lakes, ponds, sloughs and ditches in the lowland, steppe and montane zones; frequent in BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA; Eurasia, Mexico, Africa.

DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, sparingly branched.

Leaves: All submersed, linear, the sides parallel, thin, green, 1-15 cm long, 0.3-3 cm wide, unstalked, usually with 3 veins, the tips pointed, the stipules 0.5-1 cm long, delicate, not fibrous, greenish or brownish, the margins fused, the veins obscure and faint, the basal glands at nodes well-developed.

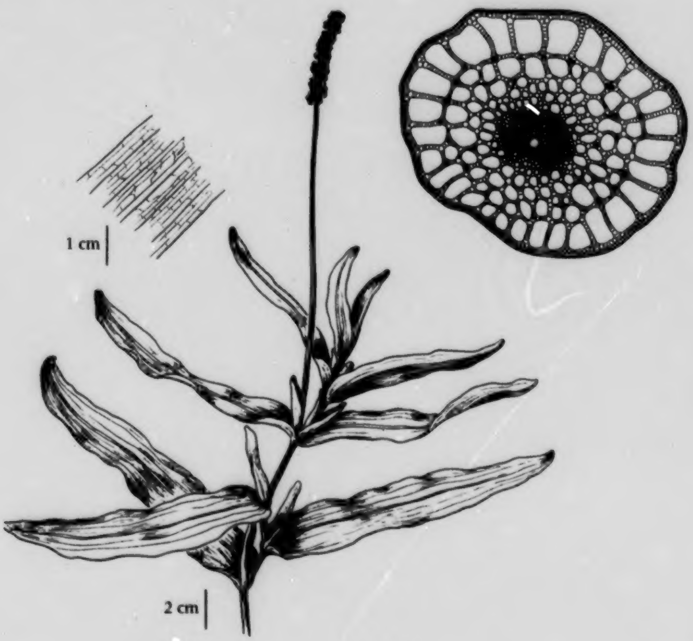
Flowers: Inflorescence spikelike, the spikes 0.5-1.5 cm long, with 2 to 5 whorls of flowers, the stalks thin; bases of the winter buds soft, smooth.

Fruits: Achenes, almost rounded, 1.5-2.8 mm long, 1.6-2 mm wide, widest above the middle, the beaks short, stubby, the keels absent.

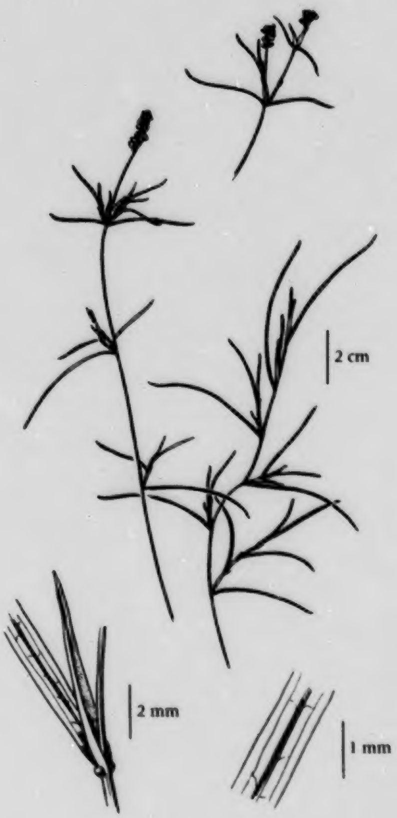
Notes: Two subspecies, occasionally treated as separate species (e.g., Douglas *et al* 1994) can be distinguished in our area:

1. Stipules with fused margins; leaves without translucent bands along the midveins or with the bands up to 2-rows wide on each side of the midveins; marginal veins join the midveins about 2 mm from the leaf tips in a sharp angle .... ssp. *pusillus*

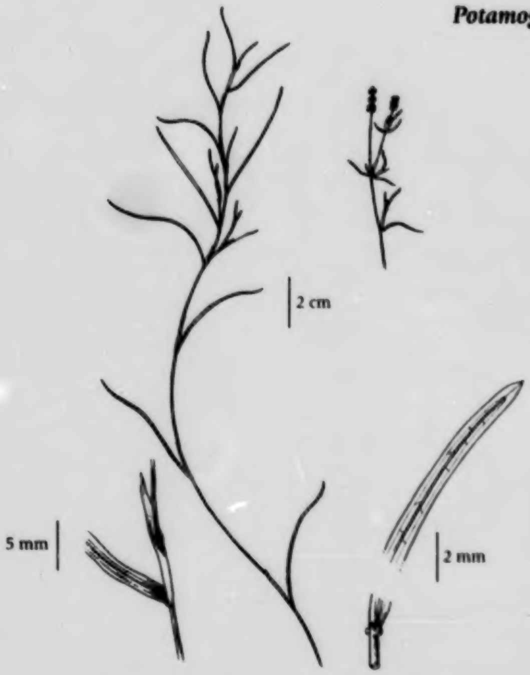
1. Stipules with overlapping margins; leaves with translucent bands up to 5-rows wide on each side of the midveins; marginal veins join the midveins about 0.5-1 mm from the leaf tips in a blunt (60 degree) angle .... ssp. *tenuissimus* (Mert. & Koch) Haynes & C.B. Hellquist



Potamogeton praelongus



Potamogeton pusillus ssp. *tenuissimus*



Potamogeton pusillus ssp. *pusillus*

***Potamogeton richardsonii* (A. Benn.) Rydb.** (*P. perfoliatus* var. *richardsonii* A. Benn.)

Richardson's pondweed

HABITAT/RANGE:

Lakes, ponds and sloughs in the lowland, steppe and montane zones; common throughout BC; amphiberingian, N to AK, YT and NT, E to PQ, NB and NS and S to to ME, MA, PA, OH, IN, IL, IA, NE, CO, AZ and CA; E Asia.

DESCRIPTION:

General: Perennial aquatic herb from strong rhizomes; stems up to 150 cm long, branched.

Leaves: All submersed, triangular-lanceolate, thin, flat, dark green, 3-10 cm long, 1-3 cm wide, the tips blunt, clasping the stem, the stipules 1-3 cm long, coarse, disintegrating into persistent whitish fibres that remain even on old plants, fibrous or stringy; floating leaves absent.

Flowers: Inflorescence spikelike, the spikes 1-4 cm long, with 6 to 12 whorls of flowers, the stalks inflated, club-shaped, 1.5-25 cm long.

Fruits: Achenes, widely egg-shaped or almost rounded, 2.5-3 mm long, 2.3-2.7 mm wide, the beaks prominent, triangular, the keels absent.

Notes: Stem anatomical characters: interlacunar bundles and subepidermal bundles absent, pseudohypodermis 1 cell thick, endodermis of O-cells.

***Potamogeton robbinsii* Oakes**

Robbin's pondweed

HABITAT/RANGE:

Lakes in the lowland, steppe and montane zones; frequent in coastal BC, infrequent E of the Coast-Cascade Mountains; N to AK, YT and NT, E to PQ, NB and NS and S to to ME, MA, PA, OH, AL, IL, MN, CO, UT, ID and OR.

DESCRIPTION:

General: Perennial, aquatic herb from strong rhizomes; stems creeping, up to 100 cm long, branched.

Leaves: All submersed, 2-ranked, linear-lanceolate, the sides parallel, dark green, stiff, unstalked, with 9 to 35 veins, 2-10 cm long, 0.4-0.8 cm wide, attached at about 5-10 mm above the nodes, the tips pointed, the bases rounded, the margins toothed, the stipules 0.5-2 cm long, light green or whitish, the tips shredded.

Flowers: Inflorescence spikelike, often branched, the spikes 2.5-4 cm long, with 3 to 5 whorls of flowers, the stalks thin.

Fruits: Achenes, rarely developed.

***Potamogeton strictifolius* A. Benn.**

stiff-leaved pondweed

HABITAT/RANGE:

Lakes in the lowland and montane zones; rare in SC and SE BC; N to YT and NT, E to NF and S to NH, NY, VA, IN, WI, MN, NE, WY, UT and ID.

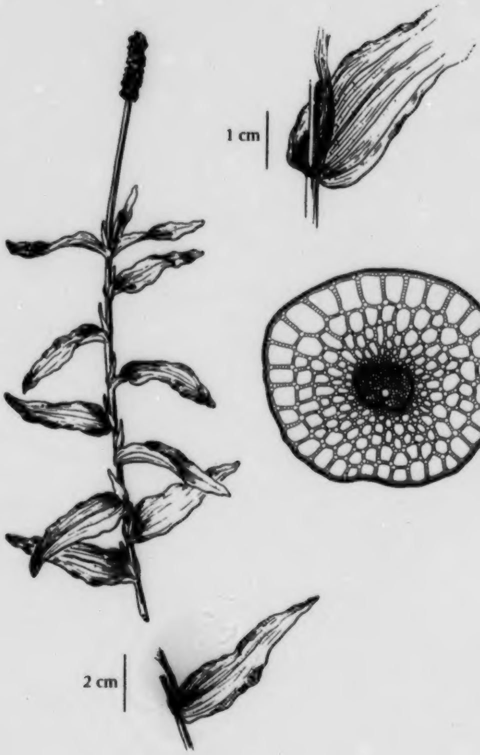
DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, branched at the base.

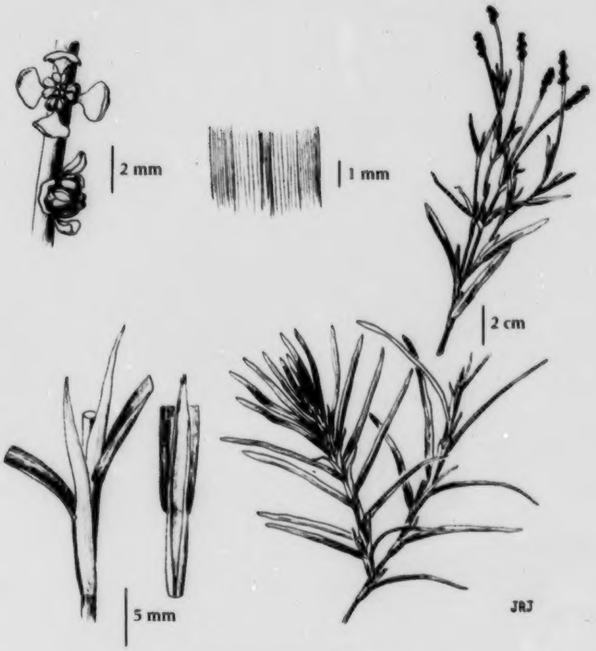
Leaves: All submersed, 2-ranked, linear, the sides parallel, stiff, brownish-green, 3-7 cm long, 0.1-0.3 cm wide, usually with 3 veins, gradually tapered into sharp bristled tips, the stipules 1-3 cm long, coarsely fibrous, whitish, the older tending to disintegrate into shreds, the margins fused towards the bases, the glands at the nodes small and inconspicuous.

Flowers: Inflorescence spikelike, the spikes 0.5-1.5 cm long, with 2 to 5 whorls of flowers, the stalks thin; winter buds cylindrical, the bases hard, strongly ribbed.

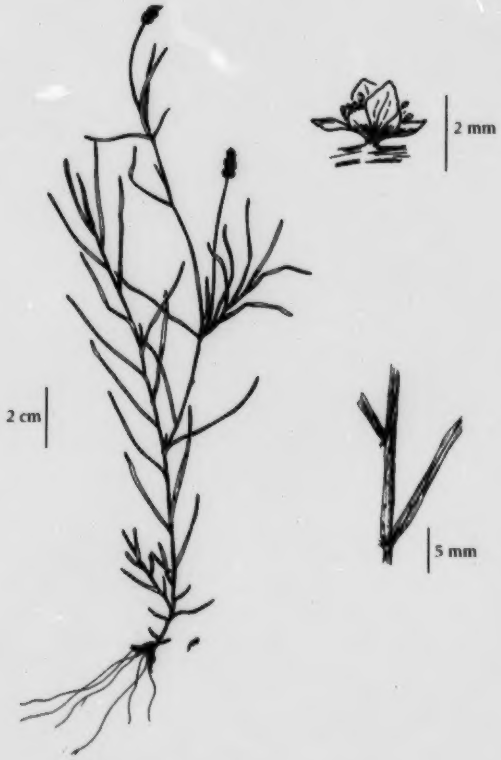
Fruits: Achenes, egg-shaped, 1.8-2.2 mm long, 1.2-1.8 mm wide, widest at the middle, the beaks short, the keels absent.



Potamogeton richardsonii


2 mm
1 mm
2 cm
5 mm
JRJ

Potamogeton robbinsii



Potamogeton strictifolius

***Potamogeton zosteriformis* Fern.**

eel-grass pondweed

HABITAT/RANGE:

Lakes in the lowland, steppe and montane zones; frequent in BC east of the Coast-Cascade Mountains, infrequent in coastal BC; N to AK, YT and NT, E to NF and S to ME, MA, NY, VA, OH, IN, IL, IA, NE, WY, UT, ID and CA.

DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 130 cm long, strongly compressed, flattened, branched.

Leaves: All submersed, linear, the sides parallel, stiff, olive green, 10-20 cm long, 0.2-0.5 cm wide, unstalked, usually with 7 to 15 veins, attached at the nodes, tapering to pointed tips, the stipules 1.5-3.5 cm long, the margins overlapping, straight, smooth.

Flowers: Inflorescence spikelike, the spikes 1.5-3 cm long, with 5 to 9 whorls of flowers, the stalks thin.

Fruits: Achenes, egg-shaped, 4-5 mm long, 3-3.5 mm wide, the beaks conspicuous, the keels winged.

STUCKENIA

1. Leaves sharp pointed at the tips; fruits with short beaks and with the surface lacking fine ray-like grooves (10x magnification) .... *S. pectinata*
1. Leaves obtuse or blunt at the tips; fruits beakless and with the surface having fine ray-like grooves (10x magnification).
    2. Primary stems 0.5-1 mm in diameter; all leaves threadlike, 0.2-0.5 mm wide, stipules with distinct ligules; fruits 2-3 mm long .... *S. filiformis*
    2. Primary stems 1-3 mm in diameter; lower leaves up to 3 mm wide and without ligules or with ligules shorter than 3 mm; upper leaves from the branches threadlike; fruits 3.5-4 mm long .... *S. vaginata*

***Stuckenia filiformis* (Pers.) Börner** (*Potamogeton filiformis* Pers.)

slender-leaved pondweed

HABITAT/RANGE:

Calcium-rich lakes in the lowland, steppe and montane zones; frequent E of the Coast-Cascade Mountains, rare along the coast; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, PA, MI, WI, IA, NE, NM, AZ and CA; Eurasia, Australia.

DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes; stems 10-100 cm long, up to 1 mm in diameter, profusely branched at the base.

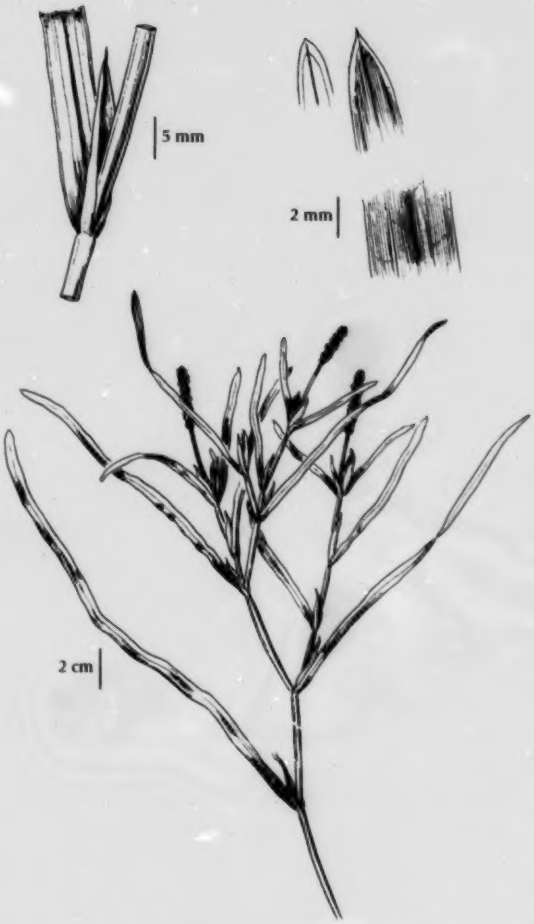
Leaves: All submersed, linear, thread-like, 5-10 cm long, up to 0.2-1.5 mm wide, with 1 vein, thin, green, the tips rounded to blunt, the stipules 0.5-1 cm long, fused, forming a tight sheath around the stem, the leaf blades arising close to the tips of the sheaths.

Flowers: Inflorescence spikelike, the spikes 1.5-2.5 cm long, interrupted, with 2-8 whorls of flowers, the stalks thin.

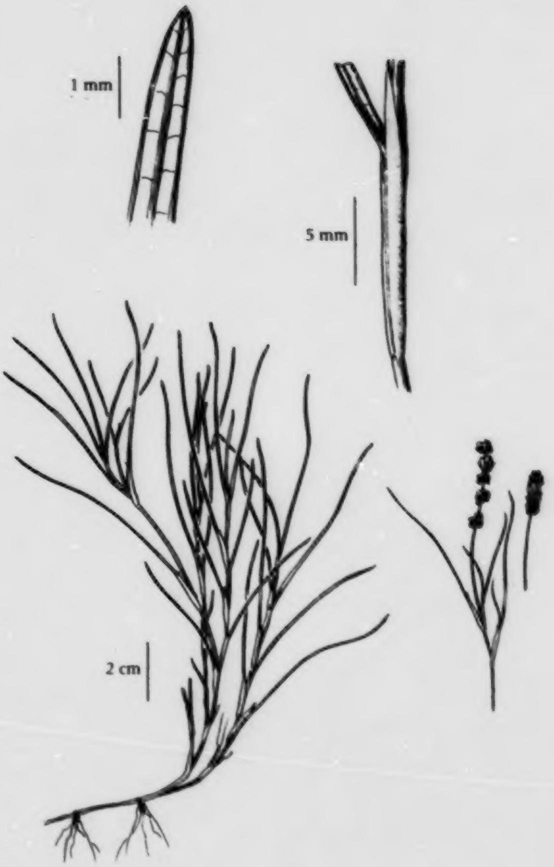
Fruits: Achenes, almost globe-shaped, 2-3 mm long, 1.5-2.4 mm wide, widest above the middle, the beaks and keels absent, the surface with fine, ray-like grooves.

Notes: Two subspecies occur in British Columbia. In addition, a third one (ssp. *filiformis*) can be expected in N BC:

1. Stems 20-100 cm long; stipules inflated at the base, especially in the leaves lower on the stem, disintegrated with age .... ssp. *occidentalis* (J.W. Robbins) Haynes, D.H. Les, & M. Král
1. Stems 10-30 cm long; stipules tightly clasping the stem, persistent.
    2. Flowers and fruits in whorls less than 4 cm apart; leaves 0.5-1 mm wide .... ssp. *alpina* (J.W. Robbins) Haynes, D.H. Les, & M. Král
    2. Flowers and fruits in whorls 4 cm or more apart; leaves 0.2-0.5 mm wide .... ssp. *filiformis*



Potamogeton zosteriformis



Stuckenia filiformis ssp. *occidentalis*

Stuckenia pectinata **(L.) Börner** (*Potamogeton pectinatus* L.)

fennel-leaved pondweed

HABITAT/RANGE:

Lakes, ponds and estuaries in the lowland, steppe and montane zones; frequent in BC east of the Coast-Cascade Mountains, infrequent on the coast; cosmopolitan, N to AK, YT and NT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ and CA; Eurasia, Mexico, C and S Africa, C and S America, New Zealand, Australia.

DESCRIPTION:

General: Perennial, aquatic herb from fine, tufted roots; stems up to 100 cm long, branched.

Leaves: All submersed, linear, thin, green, 5-10 cm long, up to 1 mm wide, with 1 to 3 veins, the tips sharp-pointed, the stipules 0.5-2 cm long, the blades arising close to the tips of the stipules.

Flowers: Inflorescence spikelike, the spikes 1.5-2.5 cm long, interrupted, with 2 to 5 whorls of flowers, the stalks thin.

Fruits: Achenes, almost globe-shaped, 3.5-4 mm long, 2.5-3 mm wide, widest above the middle, the beaks prominent, short, the keels absent, the surface without fine, ray-like grooves.

Stuckenia vaginata **(Turcz.) Holub** (*Potamogeton vaginatus* Turcz.)

sheathing pondweed

HABITAT/RANGE:

Lakes in the montane zone; rare E of the Coast-Cascades Mountains; circumpolar, N to AK, YT and NT, E to NF and S to ME, OH, MI, WI, MN, SD, CO, ID and OR; Eurasia.

DESCRIPTION:

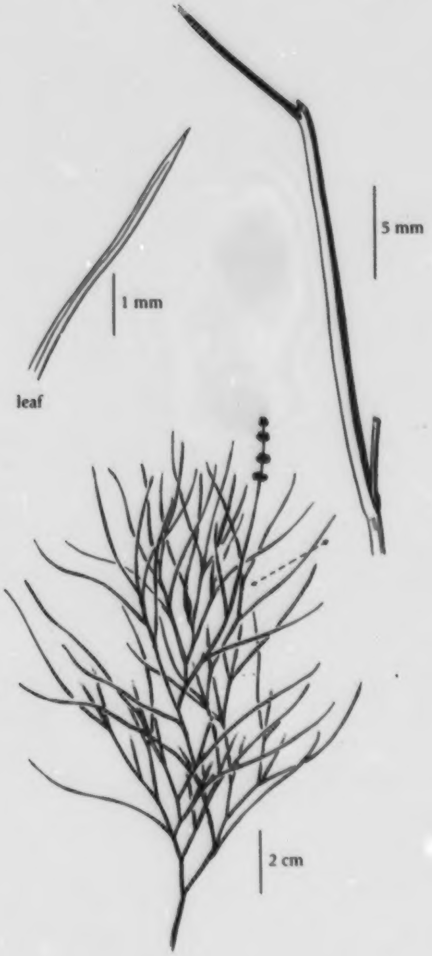
General: Perennial, aquatic herb from long rhizomes; stems up to 120 cm long, 1-3 mm wide, unbranched or sparsely branched.

Leaves: All submersed, linear, thread-like, 5-10 cm long, the lower ones up to 3 mm wide, with 1 vein, the tips round to blunt or notched, firm, dark green, the stipules 2-5 cm long, fused into inflated sheaths, the leaf blades arising close to the tips of the sheaths.

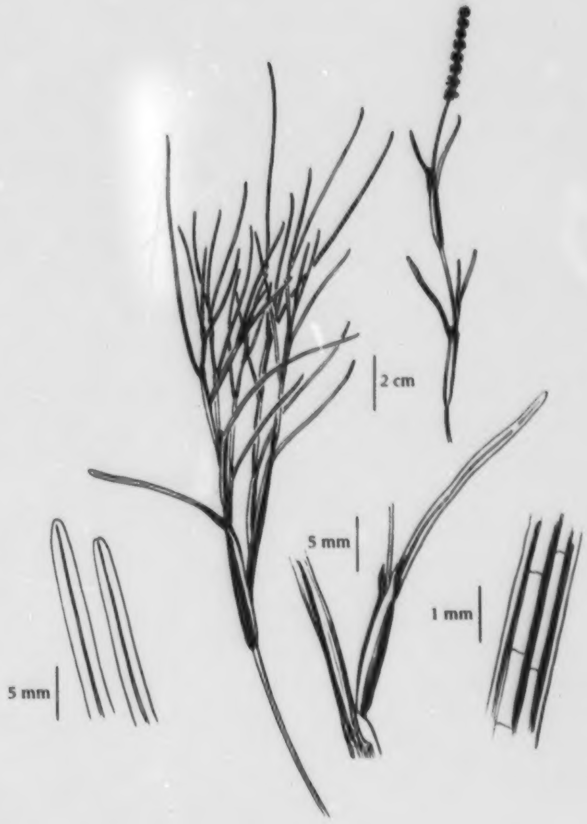
Flowers: Inflorescence spikelike, the spikes 1.5-7 cm long, interrupted, with 3 to 12 whorls of flowers, the stalks thin.

Fruits: Achenes, almost globe-shaped, 3.5-4 mm long, 2.5-3 mm wide, widest above the middle, the beaks and keels absent, the surface with fine, ray-like grooves.

Notes: Many specimens in herbaria identified as *Stuckenia vaginata* (*Potamogeton vaginatus*) are, in fact, misidentified specimens of *Stuckenia filiformis* ssp. *occidentalis*.


5 mm
1 mm
leaf
2 cm

Stuckenia pectinata


2 cm
5 mm
1 mm
5 mm

Stuckenia vaginata

RUPPIACEAE[25]

RUPPIA

1. Leaf tips more or less rounded; stalks of the inflorescence 3-10 cm long .... *R. maritima*
1. Leaf tips sharp-pointed, stalks of the inflorescence 0.2-2.5 cm long .... *R. cirrhosa*

Ruppia cirrhosa **(Petagna) Grande** (*R. maritima* var. *occidentalis* [S. Wats.] Graebn., *R. occidentalis* S. Wats.)
spiral ditch-grass

HABITAT/RANGE:

Ponds, lakes and ditches in the lowland, steppe and montane zones; infrequent along the coast, frequent in SC BC and rare in SE BC; circumpolar, N to AK, YT and NT, E to MB and S to OH, IL, TX, NM, AZ and CA; Europe, S America.

DESCRIPTION:

General: Perennial, aquatic herb from fibrous roots, rooting at the nodes; stems 30-80 cm long.

Leaves: Stem leaves threadlike, alternate, 3-40 cm long, 0.2-0.5 mm wide, the tips sharp-pointed; stipules membranous, 0.5-2 (7) cm long, fused with the leaves.

Flowers: Inflorescence on spirally coiled, axillary stalks, the coils 5 to 30, the stalks 0.2-2.5 cm long; petals lacking; stamens 2.

Fruits: Nut-like, egg-shaped, 1.5-2 mm long; beaks lateral, erect, 0.5-1 mm long.

Notes: This treatment follows that of Thome (1993) and Haynes (2000) although there is still some doubt as to whether North American *R. cirrhosa* is the same as the European.

Ruppia maritima **L.** (*R. maritima* var. *longipes* Hagstr., var. *rostrata* Agardh and var. *spiralis* [L. ex Dumort.] Moris)
beaked ditch-grass

HABITAT/RANGE:

Tidal marshes and brackish ponds, lakes and ditches in the lowland zone; common along the coast; circumpolar, N to AK, disjunctly E to NF and S to ME, MA, PA, NC, FL, TX, ID and CA; Eurasia, S America.

DESCRIPTION:

General: Perennial, aquatic herb from fibrous roots, rooting at the nodes; stems 30-50 cm long.

Leaves: Stem leaves threadlike, alternate, 6-12 cm long, 0.2-0.5 mm wide, the tips more or less rounded; stipules membranous, 0.5-2 (7) cm long, fused with the leaves.

Flowers: Inflorescence on spirally coiled, axillary stalks, the coils 0-3 (4) or lacking, the stalks 3-10 cm long; petals lacking; stamens 2.

Fruits: Nut-like, egg-shaped, 1.8-2 mm long; beaks terminal, slightly recurved, 0.6-1 mm long.

Notes: This is a highly variable species, especially with respect to fruit characteristics. Treatments range from the recognition of only one variable species (including *R. occidentalis*, e.g., Hitchcock and Cronquist 1973, Dandy 1980) to the recognition of eight or nine varieties (e.g., Scoggan 1978, Brayshaw 1985).

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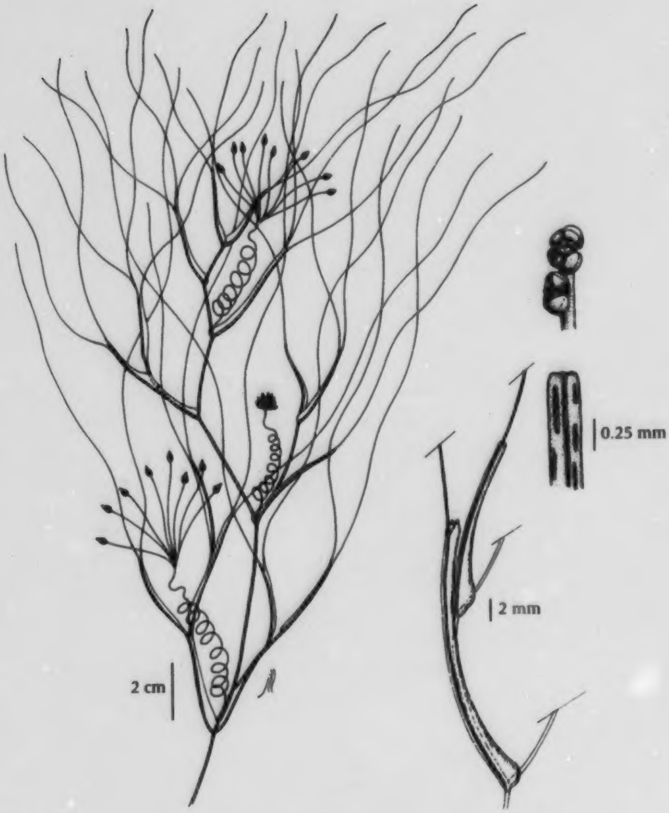
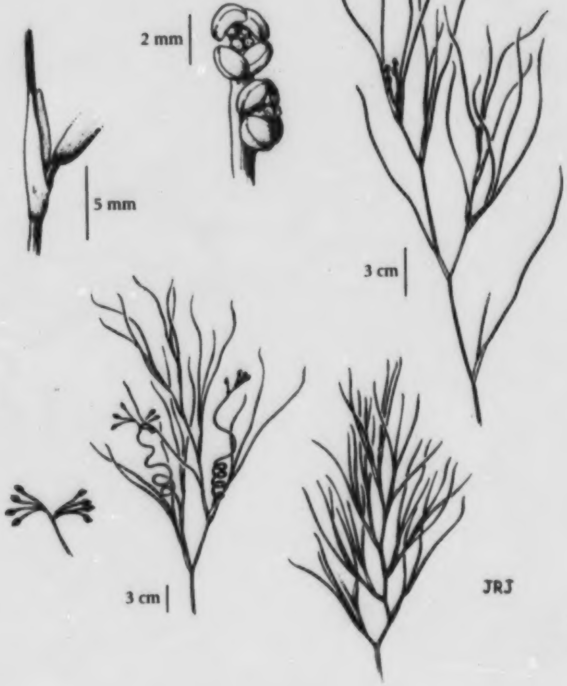
[25] Sometimes included in Zosteraceae.


0.25 mm
2 mm
2 cm

Ruppia cirrhosa


2 mm
5 mm
3 cm
3 cm
JRJ

Ruppia maritima

SCHEUCHZERIACEAE

SCHEUCHZERIA

Scheuchzeria palustris **L. ssp.** ***americana*** **(Fern.) Hult.**
scheuchzeria

HABITAT/RANGE:

Lakeshores and bogs in the lowland and montane zones; frequent in SW, C and E BC; circumpolar; N to AK, YT and NT, E to NF and S to ME, NY, PA, OH, IN, WI, MN, ND, WY, ID and CA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes, rooting at the nodes; stems 10-40 cm tall.

Leaves: Basal leaves linear, 10-40 cm long, parallel-lined, sheathing, persistent; stem leaves reduced upwards, the ligules 1-10 mm long, the blades erect, 1-3 mm wide.

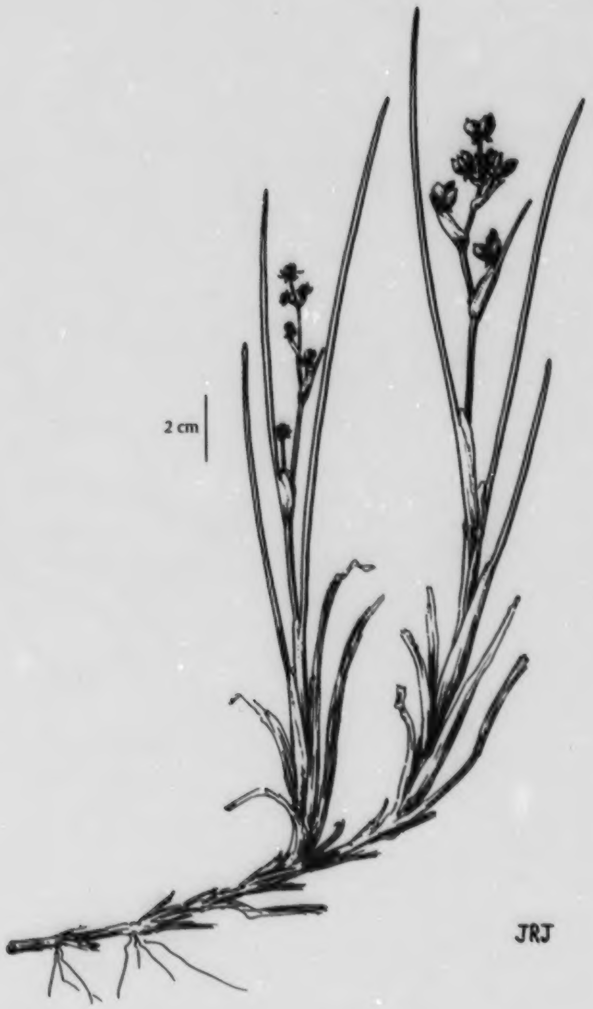
Flowers: Inflorescence of 3- to 12-flowered racemes, the greenish-white flowers on stalks up to 2.5 cm long; perianth segments 6, oblong, 1-nerved, about 3 mm across; stamens 6.

Fruits: Follicles, 5-10 mm long, beaked, the beaks up to 1 mm long; seeds 4-5 mm long.

SPARGANIACEAE

SPARGANIUM

1. Stigmas 2, rarely 1; achenes broadly top-shaped, somewhat blunt at the top except for the abrupt beak .... *S. eurycarpum*
1. Stigmas 1; achenes ellipsoid to spindle-shaped, tapering at each end.
    2. Male head usually 1, rarely 2.
        3. Female heads axillary, usually unstalked; achene beaks 0.5-1.5 mm long, curved .... *S. natans*
        3. Female heads borne from and above the leaf axils; lowest head usually stalked; achene beaks less than 0.5 mm long, straight or beakless .... *S. hyperboreum*
    2. Male heads 2 to several.
        4. Achene beaks strongly curved; perianth segments attached near base of stipe; anthers less than 0.8 mm long; stems branched .... *S. fluctuans*
        4. Achene beaks straight or slightly curved; perianth segments attached near top of stipe; anthers more than 0.8 mm long; stems branched.
            5. Achene beaks 1.5-2.2 mm long; achenes reddish to brownish at base prior to drying; stems and leaves lax, usually floating, leaves not keeled .... *S. angustifolium*
            5. Achene beaks 2-4.5 mm long; achenes greenish at base prior to drying; stems and leaves erect, emersed (occasionally floating), up to 85 cm long, leaves keeled and triangular in cross-section .... *S. emersum*



Scheuchzeria palustris* ssp. *americana

Sparganium angustifolium **Michx** (*S. angustifolium* var. *multipedunculatum* [Morong] T.C. Brayshaw, *S. emersum* var. *angustifolium* [Michx.] Taylor & MacBryde and var. *multipedunculatum* [Morong] Reveal, *S. multipedunculatum* [Morong] Rydb., *S. simplex* var. *multipedunculatum* Morong)

narrow-leaved bur-reed

HABITAT/RANGE:

Ponds, ditches and lakeshores in the lowland, steppe and montane zones; common throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, NY, PA, VA, IN, MN, NM, AZ and CA; Greenland, Europe.

DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes; stems lax, usually floating, 30-40 cm tall.

Leaves: Alternate, limp, not keeled, usually floating, linear with sheathing bases, 100-120 cm long, 2-6 (8) mm wide.

Flowers: Inflorescence simple, of 2 to 4 female heads below and 2 to 5 (8) male heads above, the heads globe-shaped, the female heads 1-2 cm wide, at least some borne above the leaf axils and subtended by conspicuous leaflike bracts; perianth segments 6, scalelike, attached near the top of the flower stalk; stigma 1; anthers about 1 mm long, 0.5 mm wide.

Fruits: Achenes, 3-7 mm long, constricted at the middle, reddish to brownish at base prior to drying, beaked, the beaks 1.5-2.2 mm long, straight or slightly curved, the stalks 1-1.5 mm long; seeds 1.

Notes: This is a highly variable species in which different forms are often treated as species (e.g., Hitchcock and Cronquist 1973) or infraspecific taxa (e.g., Brayshaw 1985). Packer (1983b) has shown that there is no justification for recognizing more than a single, variable species, at least until adequate research has shown otherwise.

Sparganium emersum **Rehm.** (*S. angustifolium* ssp. *emersum* [Rehm.] T.C. Brayshaw and var. *chlorocarpum* [Rydb.] T.C. Brayshaw, *S. chlorocarpum* Rydb., *S. simplex auct. non* Huds.,)

emersed bur-reed

HABITAT/RANGE:

Ponds, ditches and lakeshores in the lowland, steppe and montane zones; common throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, NY, PA, VA, IN, MN, SD, NM, AZ and CA; Greenland, Europe.

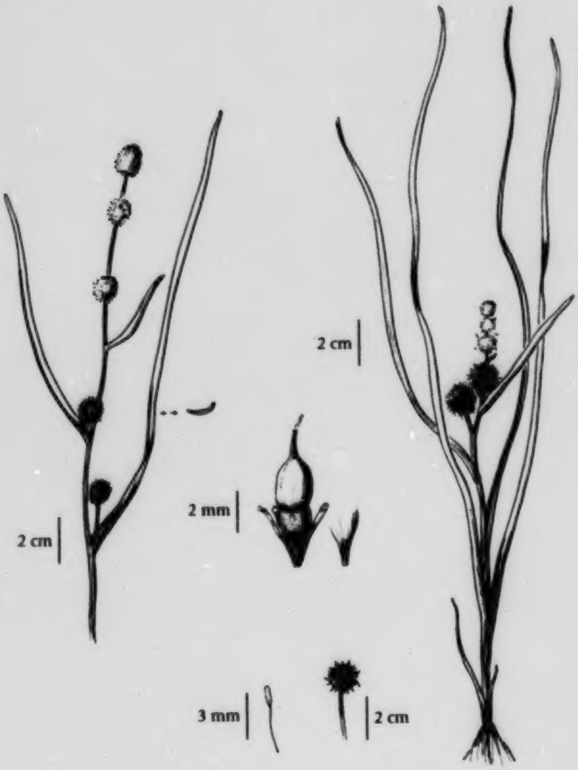
DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes; stems erect, emersed (occasionally floating), 30-40 cm tall.

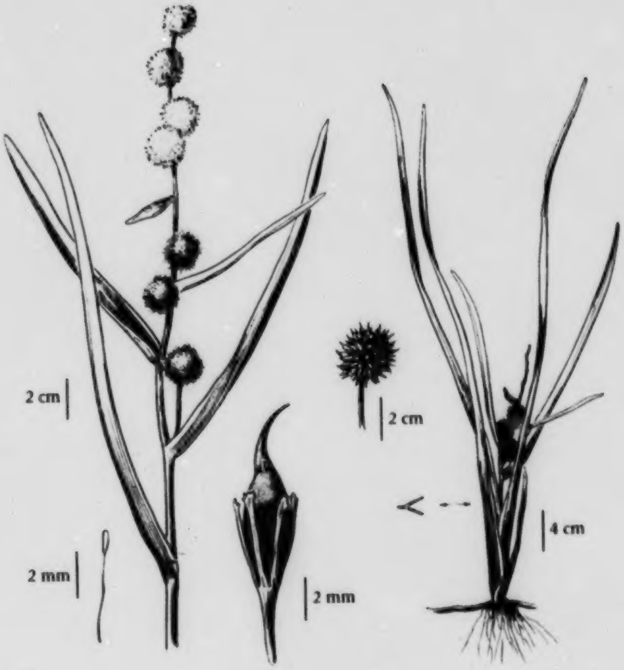
Leaves: Alternate, erect, emersed (occasionally floating), keeled and triangular in cross-section, linear with sheathing bases, 70-85 (100) cm long, 2-12 mm wide.

Flowers: Inflorescence simple, of 2 to 4 female heads below and 2 to 5 (8) male heads above, the heads globe-shaped, the female heads 1-2 cm wide, at least some borne above the leaf axils and subtended by conspicuous leaflike bracts; perianth segments 6, scalelike, attached near the top of the flower stalk; stigma 1; anthers about 1 mm long, 0.5 mm wide.

Fruits: Achenes, 2-4.5 mm long, constricted at the middle, achenes greenish at base prior to drying, beaked, the beaks 3-4 mm long, straight or slightly curved, the stalks 1-1.5 mm long; seeds 1.


2 cm
2 cm
2 mm
3 mm
2 cm

Sparganium angustifolium


2 cm
2 cm
4 cm
2 mm
2 mm

Sparganium emersum

***Sparganium eurycarpum* Engelm. (*S. eurycarpum* var. *greenei* [Morong] Graebn.)**

broad-fruited bur-reed

HABITAT/RANGE:

Wet meadows, shallow ponds and lakeshores in the lowland, steppe and montane zones; infrequent in S and E BC; N to NT, E to NF and S to ME, MA, PA, NY, VA, KY, MO, OK, NM, AZ, CA and MX.

DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes; stems erect and emergent, 60-120 (200) cm tall.

Leaves: Alternate, stiff, emergent, erect, keeled at the base, flat at the tips, linear, 20-80 cm long, 8-20 mm wide.

Flowers: Inflorescence branched, of 1 or 2 female heads below and 5 to12 male heads above, the heads globe-shaped, unstalked, the female heads 2-2.6 cm wide, at least some borne above the leaf axils and subtended by conspicuous leaflike bracts; perianth segments 6, spoonlike, attached near the top of the flower stalk; stigmas 2 (rarely 1); anthers about 1-1.2 mm long.

Fruits: Achenes, top-shaped, 3-5 mm wide, 5-10 mm long, unstalked, beaked, the beaks 2-4 mm long, straight; seeds usually 2.

***Sparganium fluctuans* (Morong) Robins.**

water bur-reed

HABITAT/RANGE:

Ponds, lakeshores and slow-moving streams in the lowland and montane zones; rare in SW and C BC; circumpolar, E disjunctly to NF and S to ME, MA, PA, MI, WI, MN, ID and WA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from long rhizomes; stems usually submerged, 80-150 cm tall.

Leaves: Alternate, limp, unkeeled, usually floating, linear, ribbon-like, 60-100 cm long, 3-11 mm wide.

Flowers: Inflorescence branched, of 2 to 4 female heads below and 1 to 6 male heads above, the heads globe-shaped, unstalked, the female heads 1.5-2.3 cm wide, axillary and subtended by conspicuous leaflike bracts; perianth segments 6, spoonlike, often with a dark spot at the tips, attached near the base of the flower stalk; stigma 1; anthers about 0.4-0.8 mm long.

Fruits: Achenes, 2-5 mm long, unstalked, more or less constricted at the middle, beaked, the beaks 2-3.5 mm long, curved; seeds 1.

***Sparganium hyperboreum* Laest. ex Beurl.**

northern bur-reed

HABITAT/RANGE:

Ponds and lakeshores in the lowland and montane zones; infrequent throughout BC; circumpolar, N to AK, YT and NT and E to NF; Greenland, Eurasia.

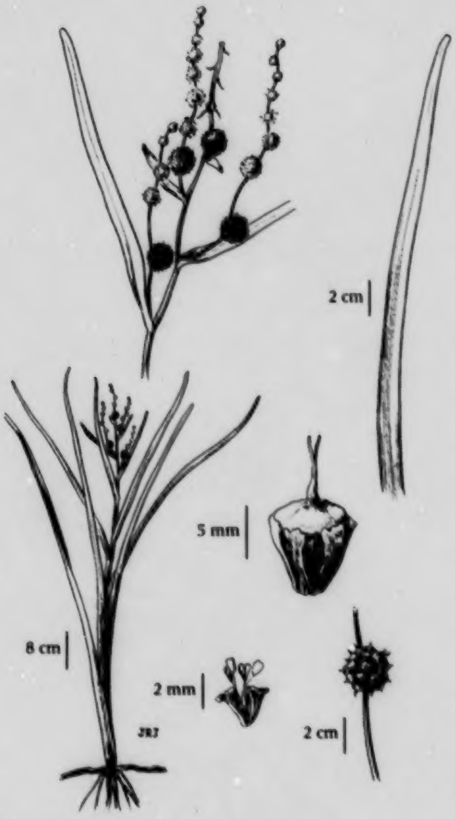
DESCRIPTION:

General: Perennial, aquatic herb from weak rhizomes; stems floating, 20-80 cm tall.

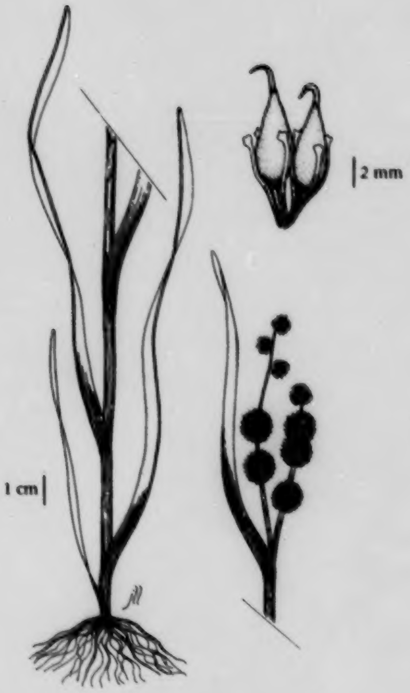
Leaves: Alternate, limp, grasslike, unkeeled, flat, floating, linear with sheathing bases, 10-50 cm long, 1-5 mm wide.

Flowers: Inflorescence simple, of 1 to 4 female heads below and 1 (rarely 2) male head above, the heads globe-shaped, the female heads 0.5-1.4 cm wide, at least some borne above the leaf axils, unstalked above, stalked below; perianth segments 6, attached near the top of the flower stalk; stigma 1; anthers less than 0.8 mm long.

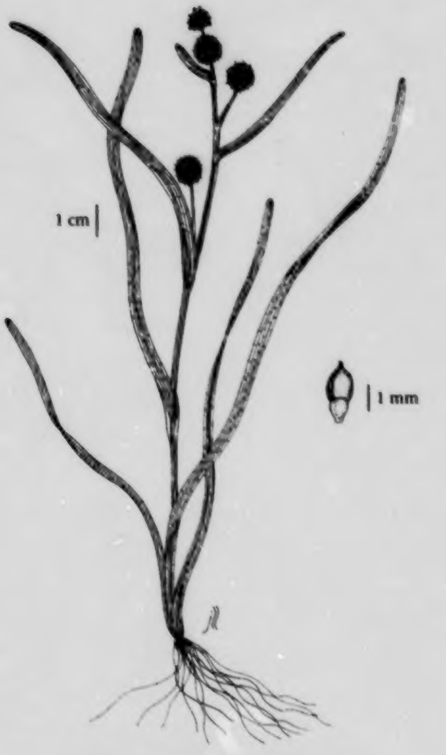
Fruits: Achenes, 2-5 mm long, constricted at the middle, beaked or beakless, the beaks less than 0.5 mm long, straight; seeds 1.


2 cm
5 mm
8 cm
2 mm
2 cm
JRJ

Sparganium eurycarpum



Sparganium fluctuans



Sparganium hyperboreum

Sparganium natans **L.** (*S. minimum* [Hartm.] Fries.)

small bur-reed

HABITAT/RANGE:

Ponds, lakeshores and slow-moving streams in the lowland and montane zones; common throughout all but NW BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, MA, NY, IN, MN, CO, AZ and CA; Eurasia.

DESCRIPTION:

General: Perennial, aquatic herb from weak rhizomes; stems floating, 20-60 cm tall.

Leaves: Alternate, limp, unkeeled, flat, floating, linear with sheathing bases, 40-60 cm long, 2-8 mm wide.

Flowers: Inflorescence simple, of 1 to 3 female heads below and 1 male head above, the heads globe-shaped, the female heads 0.5-1.2 cm wide, axillary, sometimes borne above the leaf axils, usually unstalked or sometimes stalked below; perianth segments 6, attached near the top of the flower stalk; stigma 1; anthers less than 0.8 mm long.

Fruits: Achenes, 2-4 mm long, barely or not constricted at the middle, beaked, the beaks 0.5-1.5 mm long, curved; seeds 1.

TYPHACEAE

TYPHA

1. Male and female spikes separate; pollen shed singly .... *T. angustifolia*

1. Male and female spikes usually contiguous; pollen shed in groups of 4 .... *T. latifolia*

Typha angustifolia **L.**

lesser cattail; narrow-leaved cattail

HABITAT/RANGE:

Wet ponds, lakeshores, riverbanks and marshes in the lowland zone; rare in SW BC (Vancouver area); introduced from E North America.

DESCRIPTION:

General: Perennial herb from tough, extensive rhizomes; stems erect, simple, hard, pithy, 100-200 cm tall.

Leaves: Sheaths lobed at the top, the lobes ear-like, membranous, veined; blades convex on the outer surface, 5-10 (12) mm wide.

Flowers: Inflorescence a densely crowded, terminal, cylindrical spike; female and male portions of the spikes separated by 0.5-8 cm; the female portion below, brown, 15-20 cm wide, the male portion above, slightly wider than the female; female flowers subtended by a linear bract, the bract swollen at the top; stigmas linear; pollen grains single.

Fruits: Follicles, dry, dehiscent, ellipsoid, long-hairy, about 1 mm long.

Typha latifolia **L.**

common cattail; common bulrush

HABITAT/RANGE:

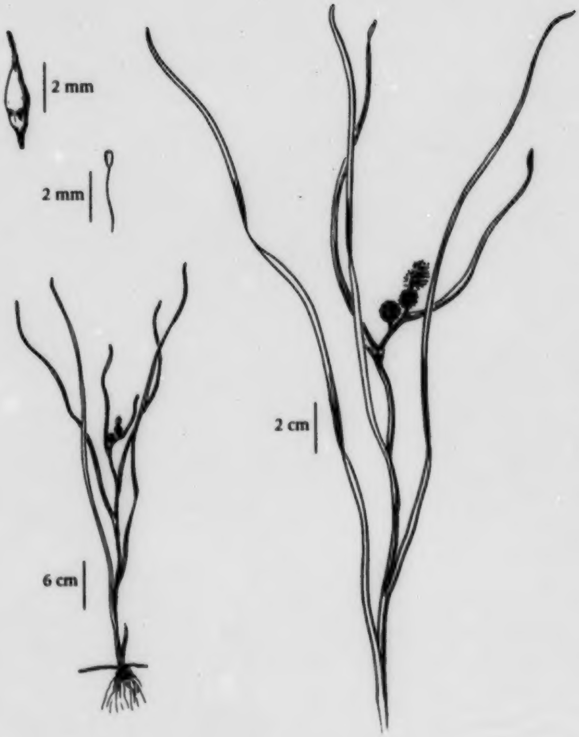
Wet ditches, ponds, lakeshores and marshes in the lowland, steppe and montane zones; common in S BC, less frequent in NE BC; circumpolar, N to AK, YT an NT, E to NF and S to ME, MA, PA, NC, FL, MS, LA, TX, NM, AZ, MX and CA; Eurasia, N Africa.

General: Perennial herb from tough, extensive rhizomes; stems erect, simple, hard, pithy, 100-300 cm tall.

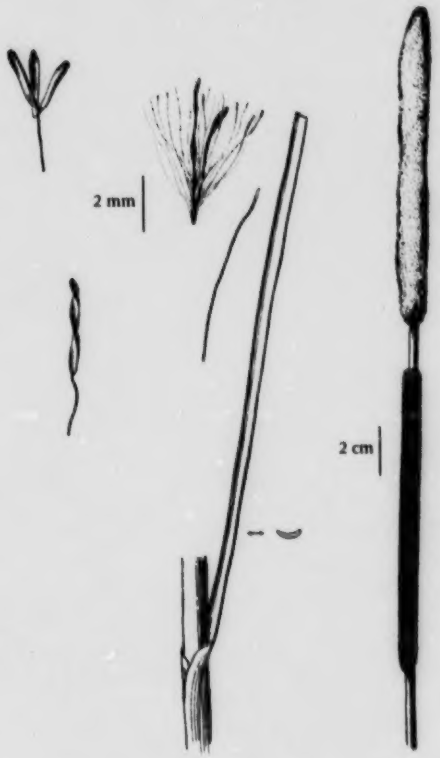
Leaves: Sheaths tapered to blades, sometimes veined; blades flat, 8-20 mm wide.

Flowers: Inflorescence a densely crowded, terminal, cylindrical spike: female and male portions of the spikes usually contiguous; the female portion below, brown, 12-30 cm wide, the male portion above, slightly wider than the female; female flowers not subtended by a bract; stigmas lanceolate to egg-shaped; pollen grains in groups of four.

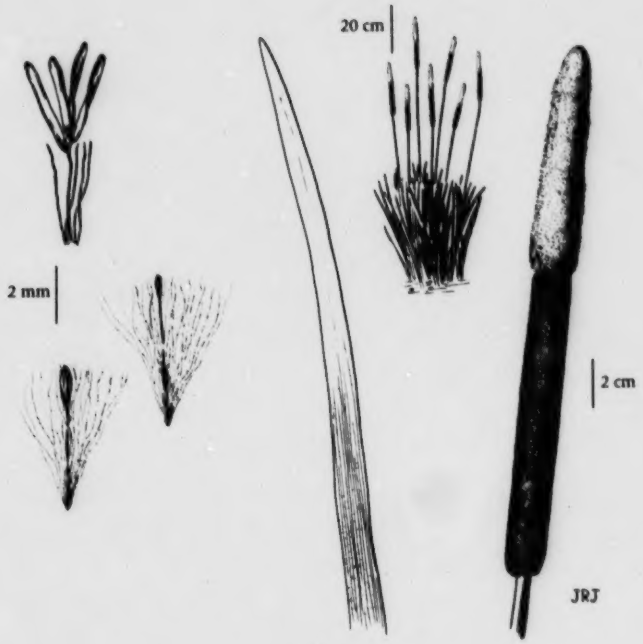
Fruits: Follicles, dry, dehiscent, ellipsoid, long-hairy, about 1 mm long.


2 mm
2 mm
2 cm
6 cm

Sparganium natans



Typha angustifolia


20 cm
2 mm
2 cm
JRJ

Typha latifolia

ZANNICHELLIACEAE[26]

ZANNICHELLIA

Zannichellia palustris **L.**

horned pondweed

HABITAT/RANGE:

Shallow, often alkaline or brackish lakeshores, slow-moving streams and tidal marshes in the lowland, steppe and montane zones; frequent in BC south of 54° N, less frequent northward and on Vancouver Island; cosmopolitan, E to NF and NS and S to FL, TN, TX, MX; S America, Eurasia, Africa.

DESCRIPTION:

General: Perennial, aquatic herb from slender rhizomes; stems threadlike, freely branching, 20-50 cm long.

Leaves: Stem leaves opposite, threadlike, 1-nerved, 2-10 cm long, less than 1 mm wide, the tips abruptly pointed, membranous-sheathing at the base.

Flowers: Inflorescence of male and female flowers in the axils, sometimes not together; the female flowers mostly of 3-5 carpels, unstalked or short stalked with a subtending bract shorter than the pistils; male flowers a single stamen.

Fruits: Achenes, stalked, the backs curved, the fronts smooth or sharply toothed, beaked, the beaks 1 mm long.

ZOSTERACEAE

1. Plants with male and female flowers on different plants; spadices (fleshy spikes) bordered by conspicuous flap-like projections; rhizomes short, stout .... *Phyllospadix*
1. Plants with male and female flowers on the same plant; spadices (fleshy spikes) with inconspicuous projections, if any; rhizomes elongate, slender .... *Zostera*

PHYLLOSPADIX

1. Stems of fertile shoots 40-120 cm long, branched; female inflorescences 3-7 per stem .... *P. torreyi*
1. Stems of fertile shoots 5-40 cm long, unbranched; female inflorescences usually 1 per stem.
   2. Leaves with 3, rarely 5, longitudinal veins, margins entire .... *P. scouleri*
   2. Leaves with 5, sometimes 7, longitudinal veins, margins toothed toward the tips .... *P. serrulatus*

Phyllospadix scouleri **Hook.**

Scouler's surf-grass

HABITAT/RANGE:

Exposed, rocky, intertidal to subtidal coastal shores; common along the coast; N to AK and S to MX.

DESCRIPTION:

General: Perennial, aquatic herb from slender rhizomes; stems annual, usually unbranched, 5-40 cm long, about 2 mm wide.

Leaves: Tufted at the rhizome nodes, flat, 3- (5-) veined, margins entire, (30) 50-150 cm long, 2-4 mm wide.

Flowers: Inflorescence of stalked spikes of male and female flowers on different plants; female spikes usually 1 per stem, 1-sided, 4 (5) cm long, with 9-24 flowers; male spikes 5-6 cm long.

Fruits: Nutlets, 3-4 mm long, base with 2 downward projecting, hornlike lobes.

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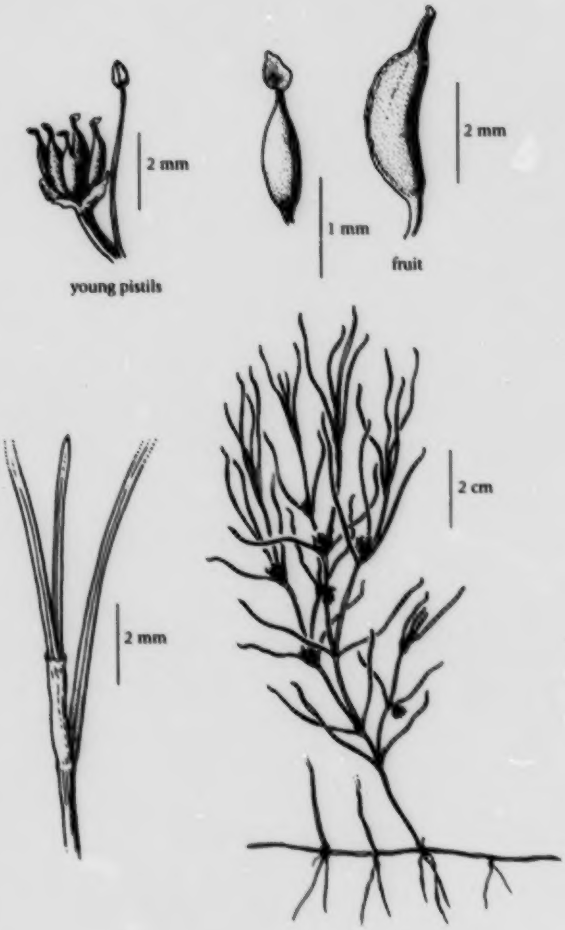
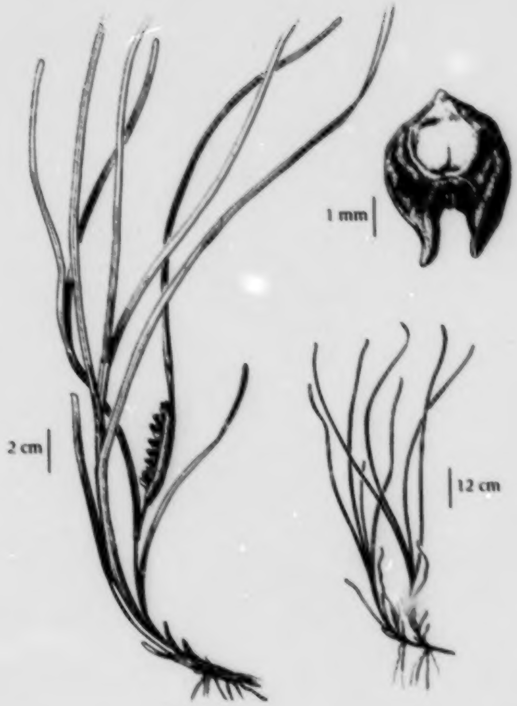
[26] Sometimes included in Zosteraceae.


2 mm
1 mm
2 mm
2 cm
2 mm

young pistils

fruit

Zannichellia palustris


1 mm
2 cm
12 cm

Phyllospadix scouleri

***Phyllospadix serrulatus* Rupr. ex Aschers.** (*P. scouleri auct. non* Hook.)

toothed surf-grass

HABITAT/RANGE:

Sheltered intertidal and subtidal coastal shorelines; frequent along the coast; N to AK and S to OR.

DESCRIPTION:

General: Perennial, aquatic herb from slender rhizomes; stems annual, usually unbranched, 5-40 cm long, about 2 mm wide.

Leaves: Tufted at the rhizome nodes, flat, 5- (7-) veined, the margins toothed towards the tips, (30) 50-150 cm long, 2-4 mm wide.

Flowers: Inflorescence of 5- to 40-cm long, stalked spikes of male and female flowers on different plants; female spikes usually 1 per stem, 1-sided, 4 (5) cm long, with 5-12 flowers; male spikes 5-6 cm long.

Fruits: Nutlets, 3-4 mm long, the base with 2 downward projecting, hornlike lobes.

Notes: Until the work of Phillips (1970), material of this species was included in *P. scouleri*.

***Phyllospadix torreyi* S. Wats.**

Torrey's surf-grass

HABITAT/RANGE:

Exposed, rocky, intertidal to subtidal coastal shores; infrequent along the coast south of 51° N; S to MX.

DESCRIPTION:

General: Perennial, aquatic herb from slender rhizomes; stems annual, usually branched, 40-120 cm long, 0.5-2 mm wide.

Leaves: Tufted at the rhizome nodes, becoming folded or cylindric, 3- (5-) veined, margins entire, (30) 50-150 long, 1-1.5 (2) mm wide.

Flowers: Inflorescence of stalked spikes of male and female flowers on different plants; female spikes 3-7 per stem, 1-sided, 4 (5) cm long; male spikes 5-6 cm long.

Fruits: Nutlets, 3-4 mm long, base with 2 downward projecting, hornlike lobes.

ZOSTERA[27]

1. Leaves 1-1.5 mm wide, 3-veined; leaf sheaths split to the base .... *Z. japonica*
1. Leaves 1.5-12 mm wide, 5- to many-veined; leaf sheaths on sterile shoots closed at the base ..... *Z. marina*

***Zostera japonica* Aschers. & Graebn.** (*Z. americana* den Hartog, *Z. nana auct. non* [Mertens] Roth, *Z. noltii auct. non* Hornem.)

Japanese eel-grass

HABITAT/RANGE:

Tidal mudfats; rare in SW BC, known only from Boundary Bay and Tsawwassen; introduced from E Asia.

DESCRIPTION:

General: Perennial, aquatic herb from slender rhizomes; stems annual, branching, 100-300 cm long, arising from the rhizome nodes.

Leaves: Sheaths split to the base; stem leaves alternate, 1-1.5 mm wide, 3-veined.

Flowers: Inflorescence a spike of unstalked male and female flowers alternating in 2 rows, 3-6 (8) cm long; female flowers with ovaries tapering to short styles; male flowers with unstalked anthers.

Fruits: Nutlets, egg-shaped, the walls translucent, about 2 mm long, smooth, the tips about 3/4 as long as the fruit base.

Notes: Several papers have shown that *Z. americana*, named by den Hartog (1970), is not readily separable from either *Z. noltii* (*Z. nana*) (Phillips and Shaw 1976) or *Z. japonica* (Harrison 1976, Bigley and Barreca 1982). Until adequate research has been conducted on this complex, the hypothesis of Harrison (1976) that our species (*Z. japonica*) was likely introduced from E. Asia, appears more plausible.

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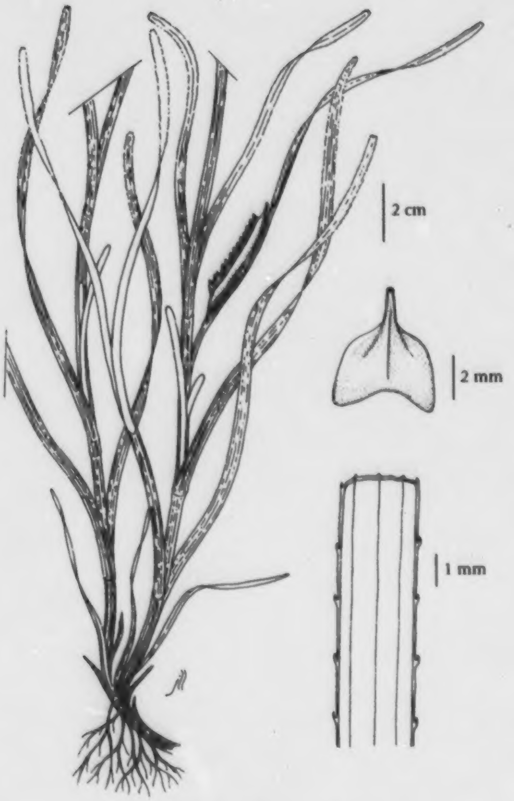
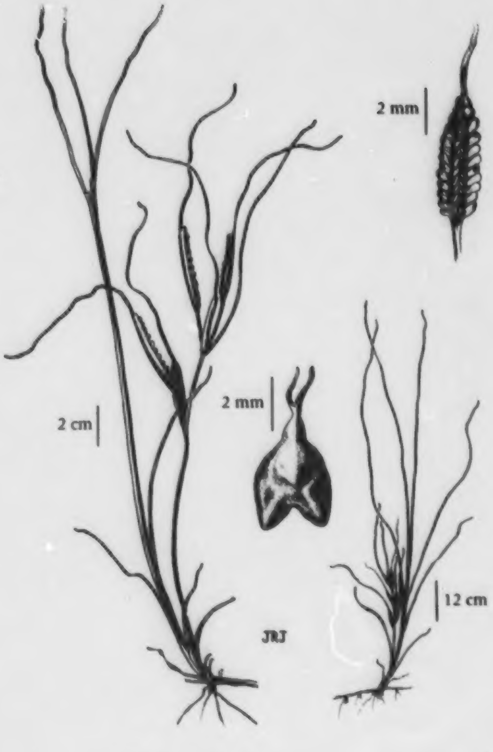
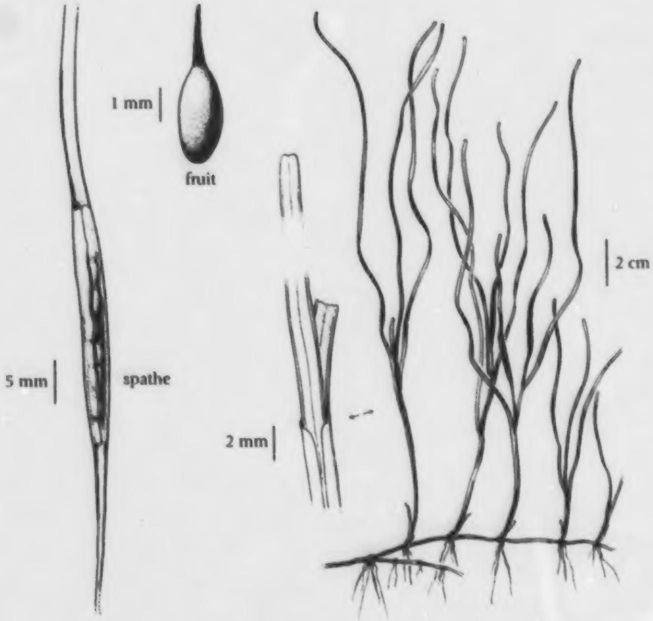
[27] Key adapted from Brayshaw (1985).



Phyllospadix serrulatus


2 mm
2 mm
2 cm
12 cm
JRJ

Phyllospadix torreyi


1 mm
fruit
2 cm
5 mm
spathe
2 mm

Zostera japonica

Zostera marina **L.** (*Z. marina* var. *latifolia* Marong. and var. *stenophylla* [Raf.] Aschers. & Graebn., *Z. oregana* S. Wats., *Z. pacifica* S. Wats., *Z. stenophylla* Raf.)

common eel-grass

HABITAT/RANGE:

Sheltered subtidal flats and common along the coast; cosmopolitan, N to AK, S to CA; E North America, Greenland, Europe, E Asia, N Africa.

DESCRIPTION:

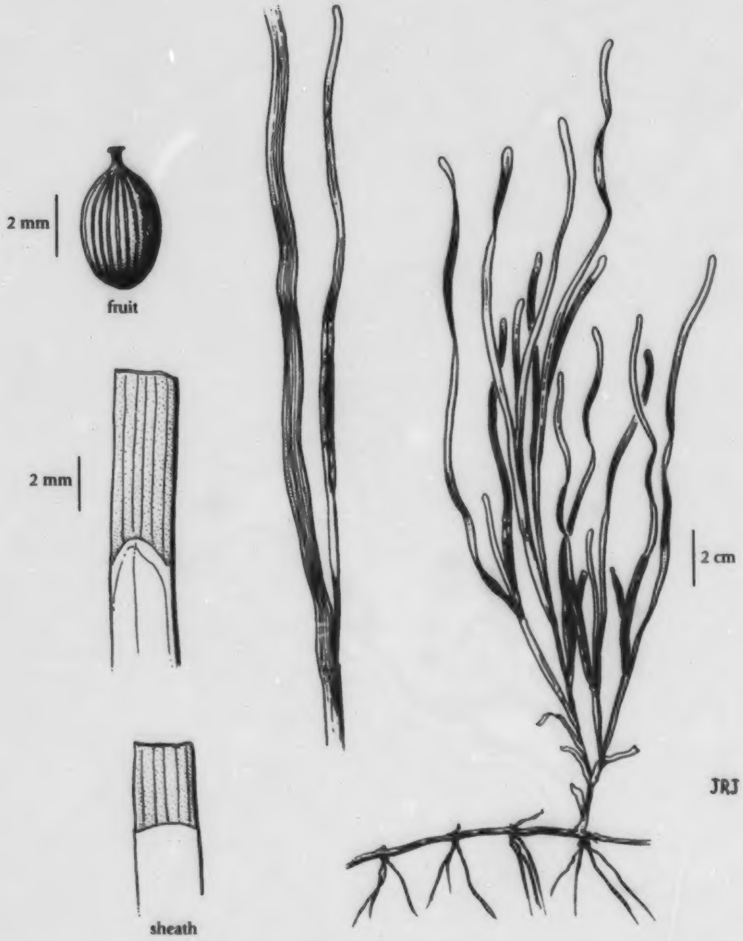
General: Perennial, aquatic herb from slender rhizomes; stems annual, branching, 100-250 cm long, arising from the rhizome nodes.

Leaves: Sheaths closed; stem leaves alternate, (2) 3-12 mm wide, 5- to many-veined, up to 120 cm long.

Flowers: Inflorescence a spike of unstalked male and female flowers alternating in 2 rows, 3-6 cm long; female flowers with ovaries tapering to short styles; male flowers with unstalked anthers.

Fruits: Nutlets, flasklike, about 4 mm long, the walls translucent, strongly ribbed.

Notes: Recognition of infraspecific taxa in *Z. marina* (Brayshaw 1985), based on leaf features, appears to be a meaningless exercise considering the plasticity of these features and the lack of research.


2 mm
fruit
2 mm
2 cm
JRJ
sheath

Zostera marina

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APPENDIX 1 – EXCLUDED SPECIES

ORCHIDACEAE

***Cypripedium fasciculatum* Kell. *ex* S. Wats.** Cited in Taylor & MacBryde (1977) but no specimens seen.

***Malaxis monophyllos* var. *monophyllos*.** Cited in Straley *et al.* (1985) and is referrable to var. *brachypoda*. The var. *monophyllos* is restricted to Europe.

POACEAE

***Agrostis canina* L. ssp. *canina*.** Cited by Taylor and MacBryde (1977) and Scoggan (1978), this taxon is used in lawns and on golf courses and escapes occasionally but does not persist.

***Agrostis melaleuca* (Trin.) A.S. Hitchc.** (*A. alascana* Hult.). These taxa are of uncertain application. They have generally been applied (i.e., in Taylor and MacBryde 1977, Scoggan 1978) to *A. mertensii* and northern forms of the taxon treated in this manual as *A. idahoensis*.

***Alopecurus myosuroides* Huds.** (*A. agrestis* L.) First reported by Hubbard (1969) and taken up by Taylor and MacBryde (1977), this species was never established in our area.

***Alopecurus saccatus* Vasey.** (*A. howellii* Vasey) First reported by Henry (1915) and taken up by Taylor and MacBryde (1977) but probably based on collections of *A. carolinianus* (Scoggan 1978).

***Briza media* L.** Reported by Hubbard (1969) and Scoggan (1978) but not collected since 1917.

***Bromus arvensis* L.** Cited by Scoggan (1978) but no specimens seen.

***Bromus erectus* Huds.** (*B. macounii* Vasey). Reported from the Victoria area by Henry (1915) and taken up by numerous other authors but not collected for over 75 years.

***Bromus orcuttianus* Vasey.** First cited by Macoun (1888) and taken up by Henry (1915) and Hubbard (1969) but probably based on a misidentification since the species is known north only to Mt. Rainer, WA.

***Bromus rubens* L.** Cited from Nanaimo by Henry (1915) and taken up by Taylor and MacBryde (1977) and Scoggan (1978) but not collected for over 75 years.

***Bromus suksdorfii* Vasey.** Taylor and MacBryde (1977) and Straley *et al.* (1985) reported this species from Manning Park but it is based on a misidentification of *B. vulgaris*.

***Corynephorus canescens* (L.) Beauv.** This species was once established in Vancouver (Eastham 1947, Hubbard 1969, Taylor and MacBryde 1977) but no longer persists.

***Danthonia parryi* Scribn.** First reported by Baum and Findlay (1973) and taken up by Taylor and MacBryde (1977) but no material seen during this study.

***Danthonia sericea* Nutt.** This species, cited by Baum and Findlay (1973), occurs east of the Mississippi River in the US.

***Echinochloa colonum* (L.) Link.** Cited by Hubbard (1969) but no specimens seen.

***Elymus scribneri* (Vasey) M.E. Jones.** Reported for BC by Hitchcock *et al.* (1969) and Taylor and MacBryde (1977) but no material found.

***Elymus virginicus* L. var. *submuticus* Hook.** Cited by Taylor and MacBryde (1977) and Scoggan (1978), this species does not occur W of the Rocky Mountains.

***Festuca cinerea* Vill.** Reported from only one collection in BC, near Nanaimo Lakes on Vancouver Island in 1950.

***Festuca hallii* (Vasey) Piper.** Cited by Taylor and MacBryde (1977) this species does not occur in BC.

***Festuca ovina* L. var. *ovina*.** This taxon, cited by Scoggan (1978), does not occur in BC.

***Glyceria fluitans* (L.) R. Br.** Cited by Boivin (1966-1967) and Scoggan (1978) but no BC material seen.

***Melica aristata* Thurb. ex. Boland.** This species of the W U.S.A. was first reported by Henry (1915) and later taken up by Taylor and MacBryde (1977). These reports are apparently erroneous.

***Melica geyeri* Munro.** This report by Eastham (1947) was based on an early (1917) Vancouver Island collection.

***Mibora minima* (L.) Desv.** Known only from an old (1914) collection at the Experimental Station near Sidney.

***Muhlenbergia sylvatica* Torr.** Reported from a roadside near Kamloops (Scoggan 1978) but the collection reidentified as *M. mexicana*.

***Muhlenbergia uniflora* (Muhl.) Fern.** This species was probably introduced from ship ballast and is not naturalized.

***Oryzopsis canadensis* (Poir) Torr.** The only BC collection of this species (Douglas *et al.* 1998) has been reidentified.

***Panicum rigidulum* Bosc ex Nees** (*P. agrostoides auct. non* Spreng.) Cited from Sproat Lake by Macoun (1888) and taken up by more recent authors but never recollected in BC.

***Phalaris minor* Retz.** Collected on ballast at Nanaimo about 100 years ago and cited by Taylor and MacBryde (1977) and Scoggan (1978) but never recollected in BC.

***Phippsia algida* (Soland.) R. Br.** This species, cited by Taylor and MacBryde, has yet to be collected in BC. It occurs just north of the BC border in SW YT.

***Poa abbreviata* R. Br. ssp. *abbreviata*.** Collections treated as this high arctic species by Taylor and MacBryde (1977) have been reidentified as *P. abbreviata* ssp. *pattersonii*.

***Poa arctica* R. Br. ssp. *grayana* (Vasey) Löve, Löve & Kapoor.** This species of the Rocky Mountains, reported by Hitchcock *et al.* (1969) and Taylor and MacBryde (1977), does not reach Canada. Material named this has been placed under other subspecies of *P. arctica*.

***Poa arida* Vasey.** Reports of this species (Scoggan 1978) were based on collections of *P. secunda*.

***Poa bolanderi* Vasey.** Collections of this species, cited in Henry (1915), have been reidentified as *P. howellii*.

***Poa cusickii* Vasey ssp. *cusickii*.** This species of the W US does not reach our region. Material identified as this species, and reported by Taylor and MacBryde (1977) and Scoggan (1978), has been reidentified as *P. cusickii* ssp. *pallida*.

***Poa kelloggii* Vasey.** First reported by Jamieson (1979) and taken up by Straley *et al.* (1985), this species is apparently restricted to N CA. The specimen in question has been reidentified as *Poa marcida*.

***Poa leibergii* Scribn.** (*P. vaseyochloa* Scribn.) Cited by Henry (1915) but no material seen.

***Poa occidentalis* Vasey.** Reported by Henry (1915) and taken up by Scoggan (1978). The relevant material has been re-determined as *P. palustris*.

***Poa reflexa* Vasey & Scribn.** Cited by Hitchcock *et al.* (1969) and Taylor and MacBryde (1977) but our material is actually *P. leptocoma*.

***Poa suksdorfii* (Beal) Vasey.** The relevant collection cited by Douglas and Ratcliffe (1981) has been reidentified as *P. secunda* ssp. *secunda*.

***Poa tracyi* Vasey.** First cited by Hitchcock (1951) and taken up by Taylor and MacBryde (1977), this species occurs only in the S Rocky Mountains.

***Puccinellia lemmonii* (Vasey) Scribn.** Most collections from BC identified as such, and reported by Taylor and MacBryde (1977) and Scoggan (1978), are depauperate specimens of *P. nuttalliana*.

***Puccinellia maritima* (Huds.) Parl.** This European species is known only from N American ports (presumably on ballast). Most collections from BC named this are actually robust specimens of *P. nutkaensis* (i.e., *P. lucida*).

***Spartina pectinata* Link.** Cited by Eastham (1947), Taylor and MacBryde (1977) and Scoggan (1978) from a collection made over 40 years ago at Sea Island.

***Sporobolus neglectus* (Nash) Scribn.** This species has been collected in railroad yards in Vancouver but it does not persist.

Stipa occidentalis **Thurb. ex S. Wats.** This taxon, cited for BC by Hitchcock *et al.* (1969) and Taylor and MacBryde (1977), does not occur in BC.

PONTEDERIACEAE

Pontederia cordata **L.** This species, cited by Taylor and MacBryde (1977) and Scoggan (1978), was based on a Port Alberni collection made in 1950. A more recent collection (Brayshaw 1985) was taken from a waterfront planting outside a home in the Victoria area. The plant does not spread in our region.

POTAMOGETONACEAE

Potamogeton diversifolius **Raf.** Reported by Hitchcock *et al.* (1969) and Brayshaw (1985), but no specimen seen. No BC specimen cited in Reznicek & Bobbette (1976).

Potamogeton fibrillosus **Fern.** The specimen (collected in Manning Park) on which a report of this species was based is poor (with immature fruits) and difficult to identify. Haynes & Reveal (1973) and Haynes (1974) treated this taxon as *P. foliosus* var. *fibrillosus* (Fern.) Haynes & Reveal, characterized by fibrous stipules.

SPARGANIACEAE

Sparganium americanum **Nutt.** Although treated as a BC species by various authors (e.g., Fernald 1950, Boivin 1966-1967, Taylor and MacBryde 1977, Brayshaw 1985), no material was located during this study. It is likely that the material referred to by Fernald (1950) and others actually belongs to the closely related *S. angustifolium* complex.

Sparganium glomeratum **Laest. ex Beurl.** This species, reported by Taylor and MacBryde (1977), Brayshaw (1985) and Douglas *et al.* (1994), was based on misidentification.

APPENDIX II – NAME CHANGES

Anthoxanthum puelii = *A. aristatum*
Aristida longiseta var. *robusta* = *A. purpurea* var. *longiseta*
Beckmannia syzigachne ssp. *baicalensis* = *B. syzigachne*
Coeloglossum viride ssp. *bracteatum* = *C. viride* var. *virescens*
Corallorhiza maculata ssp. *mertensiana* = *C. mertensiana*
Cypripedium calceolus ssp. *parviflorum* = *C. parviflorum* var. *makasin*
Cypripedium calceolus ssp. *parviflorum* = *C. parviflorum* var. *pubescens*
Elymus elongatus ssp. *ponticus* = *Thinopyrum ponticum*
Elymus hispidus = *Thinopyrum intermedium*
Elymus lanceolatus ssp. *albicans* = *E. x albicans*
Elymus smithii = *Pascopyrum smithii*
Elymus spicatus = *Pseudoroegneria spicata*
Elymus yukonensis = *E. calderii*
Hammarbya paludosa = *Malaxis paludosa*
Hierochloë odorata = *H. hirta* ssp. *arctica*
Festuca arundinacea = *Lolium arundinaceum*
Festuca pratensis = *Lolium pratense*
Festuca viviparoidea ssp. *krajinae* = *F. viviparoidea Krajina ex Pavl. sens. lat.*
Malaxis monophyllos var. *brachypoda* = *M. brachypoda*
Malaxis monophyllos var. *diphyllos* = *M. diphyllos*
Oryzopsis exigua = *Piptatherum exiguum*
Oryzopsis micrantha = *Piptatherum micranthum*
Oryzopsis pungens = *Piptatherum pungens*
Panicum occidentale = *Dichanthelium acuminatum* var. *fasciculatum*
Panicum oligosanthes var. *scribnerianum* = *Dichanthelium oligosanthes* var. *scribnerianum*
Piperia maritima = *P. elegans*
Platanthera hyperborea = *P. aquilonis*
Platanthera hyperborea var. *huronensis* = *P. huronensis*
Poa bulbosa = *P. bulbosa* ssp. *vivipara*
Potamogeton berchtoldii = *P. pusillus* ssp. *tenuissimus*
Potamogeton filiformis = *Stuckenia filiformis*
Potamogeton pectinatus = *Stuckenia pectinata*
Potamogeton vaginatus = *Stuckenia vaginata*
Ruppia maritima var. *occidentalis* = *R. cirrhosa*
Sphenopholis obtusata var. *major* = *S. intermedia*
Sporobolus asper = *S. compositus* var. *compositus*
Stipa comata = *Hesperostipa comata* ssp. *comata*
Stipa comata = *Hesperostipa comata* ssp. *intermedia*
Stipa curtiseta = *Hesperostipa curtiseta*
Stipa hymenoides = *Achnatherum hymenoides*
Stipa lemmonii = *Achnatherum lemmonii* var. *lemmonii*
Stipa nelsonii var. *dorei* = *Achnatherum nelsonii* ssp. *dorei*

Stipa occidentalis var. *pubescens* = *Achnatherum occidentale* ssp. *pubescens*
Stipa richardsonii = *Achnatherum richardsonii*
Stipa spartea = *Hesperostipa spartea*
Trisetum cernuum = *T. canescens*
Vulpia microstachys var. *pauciflora* = *V. microstachys*
Vulpia myuros var. *hirsuta* = *V. myuros*
Vulpia octoflora var. *glauca* = *V. octoflora*
Vulpia octoflora var. *hirtilla* = *V. octoflora*

GLOSSARY[28]

Abaxial — On the side of a structure turned away from the main axis.

Acerose — With a needle-like tip, "needle-pointed".

Achene — A dry, single-seeded fruit that does not open at maturity.

Acicular — Shaped like the needle of a pine tree, "needle-like".

Acorn — The fruit of the oak (*Quercus*); composed of a nut and its cup or cupule.

Acuminate — Tapering to a narrow tip or concave point, the sides generally concavely narrowing, "long-pointed".

Acute — Tapering to a point, the sides straight (i.e., not convex or concave), "sharp-pointed".

Adaxial — On the side of a structure, turned toward the main axis.

Adnate — Fusion or attachment of unlike parts (e.g., the calyx and corolla).

Adventitious — Development of structures in unusual locations; in the case of roots, generally refers to the development of roots from the stem or leaf.

Alternate — Any arrangement of leaves or other parts not opposite or whorled; arranged singly at different heights on the stem.

Ament — A pendulous spikelike inflorescence with apetalous, unisexual flowers; a catkin.

Amphiberingian — Occurring on both sides of the Bering Strait; a phytogeographic element resulting from past migration across the Bering Land Bridge.

Amplexicaul — Clasping the stem.

Androecium — A collective term referring to male floral parts, that is, the stamens.

Androgynous — A spike bearing staminate (male) and pistillate (female) flowers where the staminate flowers are positioned above the pistillate flowers, closer to the tips of the inflorescence.

Anther — The pollen producing sac of the stamen.

Annual — Living for only 1 growing season.

Anthesis — The period of time when a flower is fully open, "flowering time".

Anthocyanic — of the character of anthocyanins, water-soluble pigments ranging in colour from blue or violet through purple to crimson.

Apetalous — Without petals.

Apex — Tip, point or end.

Aphyllopodic — Having lower leaves that are bladeless or reduced to scales (e.g., *Carex* spp.).

Apical — Located at the tips.

Apiculate — "Abruptly sharp-pointed".

Apomictic — Capable of reproducing asexually.

Apomixis — Any of several types of asexual reproduction.

Aquatic — Living in water.

Arachnoid — Covered with long, delicate, tangled hairs; resembling a cobweb.

Arcuate — Curved.

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[28] Words or phrases used in lieu of technical terms in this manual appear in quotes in the glossary.

Aristate — Having an awn or a bristle at the tip, "awl-tipped".

Armed — Possessing prickles, spines, or thorns.

Articulate — Jointed; separating at a joint, by a clean cut scar, upon maturity.

Aril — An appendage or outer covering of a seed, growing out from the hilum or funiculus; sometimes it appears as a pulpy covering.

Attenuate — Gradually tapering to a slender base or tip, "long-pointed".

Auct. non — Indicates that a species name is used commonly in the literature but is incorrect and is not the name used to refer to the type specimen.

Auricle — An ear-shaped lobe or appendage.

Auriculate — With auricles; often used to describe the base of a leaf blade where there is an auricle on either side of the petiole; with "earlike lobes".

Awn — A slender bristlelike appendage, usually at the tips of a structure.

Axil — The angle between a structure and the axis to which it is attached (e.g., the angle between a leaf and the stem).

Axile placentation — A pattern of placentation where the ovules are attached to the partitions of a compound pistil near the center of the ovary.

Axillary — Used in reference to structures attached in the axil or juncture of stem and leaf stalks.

Banner — The largest, upper petal of a papilionaceous flower.

Barb — A short, firm, reflexed process.

Barbellate — Minutely or "finely-barbed"; bearing stiff hairs with barbs.

Basal — At, or forming, the base.

Beak — A long, slender projection on a broader structure such as a fruit or seed.

Bi — A prefix meaning two or twice.

Bidentate — With two teeth, "2-cleft".

Biennial — Living for two seasons.

Bifurcate — "Two-forked".

Bilabiate — "Two-lipped"; often with reference to an irregular flower.

Bipinnate — *See* bipinnatifid.

Bipinnatifid — Twice divided.

Biseriate — Arranged in two rows.

Biserrate — Doubly serrated.

Bisexual — Bearing both male and female reproductive structures.

Biternate — Two groups of three.

Bloom — *See* glaucous.

Bract — A modified leaf, reduced in size or form, that is associated with a flower or an inflorescence; in conifers, a main appendage arising from the axis of a cone.

Bractlet — A small or secondary bract (*syn.* bracteole).

Bristle — A stiff, hairlike structure.

Bristly — With bristles.

Bulb — A small, stout underground stem bearing modified (scalelike) leaves and fibrous basal roots; generally food storage organs.

Bulbiferous — Producing bulbs.

Bulbil — A small bulb produced above the ground, often on the flowering stem.

Caducous — Falling off the plant early relative to other similar structures.

Caespitose — Growing in dense, low-lying clumps, "tufted".

Calcareous — Rich in calcium carbonate.

Callose — Bearing callosities.

Callosity — *See* callus.

Callus — A hard or firm thickening of a structure; in grasses, the thick, hardened basal portion of the lemma.

Calyx — A collective name referring to the sepals, the outer whorl of the perianth.

Campanulate — "Bell-shaped" to saucer-shaped.

Canaliculate — With a channel or a groove, "grooved".

Cane — In *Rubus* spp., woody shoots that arise each year.

Canescent — Appearing white or grey due to very short, fine hairs.

Capillary — Very slender and "hairlike".

Capitate — In a "headlike" cluster.

Capsule — A dry, dehiscent fruit comprised of more than 1 carpel; method of splitting further classifies the capsule type (e.g., circumscissile, septicidal, etc.).

Carinate — "Keeled".

Carpel — The basic unit of a pistil, a modified seed bearing leaf.

Caruncle — An often fleshy appendage at or near the attachment point (hilum) of some seeds.

Caryopsis — The dry, 1-seeded fruit found in grasses.

Catkin — See ament.

Caudate — Bearing a terminal, long and slender appendage like a tail.

Caudex — The woody, thickened and persistent basal portion of a herbaceous perennial that gives rise to leaves and flowering stems each year, i.e. "stem-base".

Caulescent — Having an obvious leafy stem.

Cauline — Of, or pertaining to, the stem, i.e. "stem leaves".

Cellular — A term used in reference to the cell-shaped network of minutely raised and lignified ridges on epidermis (e.g., on the culm of some *Carex* spp.).

Chaffy — With thin dry scales or bracts; "scaly".

Channeled — Folded or with 1 or more deep grooves.

Chartaceous — Having the texture of stiff paper or parchment; "firm-papery", thickly membranous.

Ciliate — Leaves fringed on the margins, with fine hairs (cilia), "fringed".

Ciliolate — Ciliate but with smaller hairs.

Cinereous — Ash-coloured or light grey, sometimes somewhat bluish, usually due to short hairs.

Circumboreal — Distributed at the top or the bottom of the world in the boreal zone.

Circumpolar — Distributed around the North or the South Pole.

Circumscissile — A capsule that dehisces transversely in a circular line, like the opening of a lid.

Clavate — "Club-shaped", the wider portion at the tips.

Claw — The narrowed, basal portion of some petals or sepals.

Cleft — Usually applied to leaf margins and sinuses cut sharply and about half-way to the midrib or base; deeply lobed.

Cleistogamous — Of flowers, small, closed, self-fertilized.

Cleistogenes — Plants which bear cleistogamous flowers.

Collar — In grasses, the band on the outside area of the leaf at the point where the leaf blade and the sheath converge.

Coma — A tuft of hair usually at the tips of structures like seeds.

Compound — With 2 or more parts or components.

Confluent — Structures merging into 1; fusing at the bases.

Conic — Cone-shaped; "conelike".

Connate — Union or attachment of like parts (e.g., petals), "fused".

Connivent — Convergent but not fused.

Convolute — The arrangement of petals or sepals such that each petal or sepal has 1 edge exposed while the other is covered; in grasses, a leaf that is rolled longitudinally so that 1 edge is inside the other.

Cordate — Shaped like a heart, with the notch at the base; "heart-shaped".

Coriaceous — Having a thick and leathery texture, "leathery".

Corm — A thickened, underground stem with papery leaves; a storage organ.

Corniculate — Bearing small horns.

Corolla — The collective term describing the petals of a flower.

Corymb — A flat-topped, indeterminate inflorescence where pedicels of florets are progressively shorter towards the center of the inflorescence; may be simple or compound.

Corymbose — A flat or convex-topped inflorescence; resembling a corymb.

Costa — A prominent rib or vein.

Cotyledon — The first functional leaf of a seedling.

Crenate — Toothed with rounded, broad teeth, "round-toothed".

Crenulate — Crenate but with smaller teeth.

Crown — The persistent basal portion of a perennial plant (e.g., grass), or the leafy portion of a tree; any appendage situated between the corolla and the stamens.

Cruciform — Having the shape of a cross, "cross-shaped".

Cucullate — Hooded or "hood-shaped".

Culm — The flowering stem of grasses, sedges and rushes.

Cuneate — Triangular or "wedge-shaped" with the acute angle at attachment point.

Cupulate — Cup-shaped; "cuplike".

Cuspidate — Bearing a short, rigid and sharp point, usually in reference to the tips of a leaf, "concavely awl-tipped".

Cyme — An inflorescence in which all floral axes terminate in a single flower, with the terminal flower, at the apex of the inflorescence, blooming first.

Cymose — Bearing cymes, or cyme-like.

Deciduous — Seasonal shedding of leaves or other structures after the growth period.

Decumbent — Lying on the ground with the end curved upward.

Decurrent — A structure adnate or confluent to the stem near its insertion point, with an adnate wing or margin extending down the stem or axis below the point of insertion.

Definite — Distinct; precise.

Deflexed — Bent downward or backward.

Dehiscent — Discharge of contents by the opening of pores or slits, most often pertaining to the opening of fruit at maturity.

Deltoid — Shaped like an equilateral triangle.

Dentate — With sharp, spreading teeth, "sharp-toothed".

Determinate — An inflorescence with the terminal or central flower developing first so that the inflorescence does not continue to grow in length.

Dichotomous — Forked with both branches of approximately equal size.

Didymous — Occurring or developing in pairs.

Digitate — Handlike.

Dimorphic — Having 2 forms.

Dioecious — Male and female reproductive structures borne on different plants.

Disarticulate — The separation of structures at maturity.

Disciform — With the form of a disk; in the Asteraceae, with the central flowers of a head perfect (or functionally staminate) and the marginal flowers pistillate but without a ligule.

Discoid — Resembling a disk; in the Asteraceae, with the flowers of a head all tubular and perfect (or functionally staminate).

Disk corolla (disk flower) — Tubular corolla or flower of some members of the Asteraceae.

Dissected — Divided into many small, fine and often repeated parts or segments.

Distal — Denoting the region furthest away from the organ's point of attachment.

Distichous — With parts on opposite sides of the stem in the same plane, "2-ranked".

Divaricate — "Widely spreading".

Dorsal — Pertaining to, or located on, the back of an organ.

Drupe — A fleshy, 1-seeded or 1-stoned fruit of some plants of the rose family (e.g., cherries, peaches).

Dystrophic — A water body turning brown with suspended organic material and having a high carbon to nitrogen ratio of 10:1 or greater.

Elliptic — Shaped like an ellipse, the broadest point midway between the ends, and the width about one half the length.

Emarginate — Having a shallow notch at the tips, usually with reference to a leaf or petal.

Endocarp — The innermost layer of the three layers comprising the mature ovary wall of a fruit.

Entire — A continuous margin, without teeth or divisions.

Epigaeous — Growing above ground.

Epiphytic — A plant that grows on another plant but does not receive nourishment from it.

Equitant — With alternate leaves whose basal portions overlap and are flattened lengthwise (e.g., *Iris*).

Erose — An irregular margin, appearing eroded or gnawed, not fringed or toothed.

Ex — With respect to plant authorities, indicates that the first author proposed the name for a plant and the second author published that name.

Excurrent — Extending beyond the margin or tip, as a midrib developing into a mucro or awn; with a continuing central axis from which lateral branches arise.

Exfoliate — To peel off in shreds, thin layers or plates, as bark from a tree trunk.

Exserted — Projecting beyond a surrounding structure, like stamens projecting beyond a corolla.

Extravaginal — Located outside the sheath that surrounds another organ.

Falcate — Curved sideways and tapering, "sickle-shaped".

Farinose — Covered with a white mealy substance.

Fascicle — A cluster.

Ferruginous — Rust in colour.

Fibril — Short, threadlike hair.

Filament — The slender stalk of the stamen that supports the anther.

Filiform — "Threadlike", slender and cylindrical.

Fimbriate — Fringed with hairs coarser than cilia.

Fistulose — Hollow.

Flabellate — "Fan-shaped".

Flabelliform — *See* flabellate.

Flexuous — Bent in opposite directions; having a more or less zig-zag or wavy form.

Floccose — Covered with tufts of soft woolly hairs that usually rub off readily.

Floret — A small flower, particularly 1 in a floral cluster; pertains also to the flower of a grass spikelet which includes the lemma, palea and reproductive structures.

Foliaceous — "Leaflike".

Follicle — A dry, dehiscent fruit composed of 1 carpel that splits at the side upon maturing to release its seeds.

Fornix (*pl.* fornices) — A small, scale-like or petaloid appendage in the tube or throat of the corolla (e.g, as in Boraginaceae).

Free central placentation — A pattern of placentation where the ovules are borne on a single stalk, which is anchored at the base of a 1-celled ovary.

Frond — The leaf of a fern.

Fruit — The ripened ovary and any other structures that enclose it.

Funnelform — "Funnel-shaped," usually pertaining to the corolla.

Fusiform — "Spindle-shaped," broadest at the middle and tapering to opposite ends.

Galea — The hooded portion of the perianth in some irregular or bilabiate flowers (e.g., as in *Castilleja*).

Gametophyte — The sexual reproductive stage of a plant that produces gametes; in ferns it is often the small inconspicuous form of the plant.

Gamopetalous — Flowers which are fused to any degree.

Geminate — "In pairs".

Gemma (*pl.* gemmae) — A young bud which, when detached, forms a new plant vegetatively.

Geniculate — Abruptly bent.

Gibbous — Swollen on 1 side.

Glabrate — "Nearly smooth," or becoming smooth, usually with age.

Glabrescent — *See* glabrate.

Glabrous — "Smooth," without hairs or glands.

Gland — A spot or structure that produces a sticky or greasy substance.

Glandular — Having glands.

Glandular-pubescent — With gland-tipped hairs, "glandular-tipped".

Glaucous — Covered with a whitish or bluish waxy powder that readily rubs off; with a bloom.

Globose — Spherical.

Glochidia — Retrorsely barbed hairs.

Glomerate — Aggregated or condensed into heads.

Glomerule — A dense cluster, usually of flowers.

Glumes — The 2 small bracts located at the base of a grass spikelet; they do not subtend flowers.

Glutinous — Covered with a sticky, glue-like resin.

Gynaecandrous — A spike bearing staminate (male) and pistillate (female) flowers where the staminate flowers are positioned below the pistillate flowers, thus the pistillate flowers are closest to the spike tips.

Hastate — Shaped like the head of an arrow with the basal lobes flaring outward, "arrowhead-shaped".

Head — A dense indeterminate inflorescence of sessile (or nearly sessile) flowers, situated on an axis that is much compressed vertically and sometimes flattened or saucer-shaped.

Hemispheric — In reference to a head, with a half-sphere shape.

Herb — Plant with stem that dies back to the ground after flowering or at the end of the growing season.

Herbaceous — A non-woody plant.

Heterophyllus — Having 2 types of leaves.

Heterosporous — Production of 2 different types of spores, generally differing in size.

Hirsute — Covered with long, stiff and coarse hairs, "stiff-hairy".

Hirtellous — Minutely hirsute.

Hispid — Bearing long, rigid and very sharp bristles or "bristlelike" hairs.

Hispidulous — Slightly hispid.

Hoary — Covered with short and fine white or grey hairs.

Homophyllous — With leaves that are all identical or very similar in form.

Homosporous — Production of one type of spore.

Hyaline — Thin, almost completely transparent tissue, wax papery, "translucent".

Hybrid — A cross between 2 taxa, usually a cross between 2 species of the same genus.

Hypanthium — A cup-like structure surrounding the ovary, formed by the fusion of the basal portions of the calyx, corolla and androecium.

Imbricate — Partly overlapping in a spiral manner, shingle-like, "graduated".

Imperfect — Flowers lacking either female or male reproductive structures, a unisexual flower.

Incised — Cut sharply, deeply and irregularly, as in leaf margins.

Indehiscent — Remaining closed at maturity, not splitting.

Indeterminate — An inflorescence with the terminal or central flower developing last thus allowing the inflorescence to continue growing.

Indument — Appendages or outgrowths from the epidermis of a plant, a collective term, of hairs or scales.

Indurate — Hard or stiff.

Indusium (*pl.* indusia) — A scale-like outgrowth that covers and protects the cluster of sporangia located on the underside of a fern frond.

Inferior (ovary) — When the perianth and androecium are fused at the top of the ovary wall, the ovary position is described as inferior.

Inflorescence — The flowering cluster, categorized by the arrangement of flowers on the floral axis.

Intergradients — Taxa that interbreed and consequently share many characteristics making it difficult to separate them taxonomically.

Internode — The section of a stem or another structure between 2 nodes.

Interrupted — Discontinuous, with gaps.

Involucre — A set of bracts subtending an inflorescence or head.

Involute — Margins longitudinally in-rolled, on the upper side, toward the center.

Irregular — Pertaining to a flower in which similar parts (e.g., petals) are unequal in shape and size (*syn.* zygomorphic).

Keel — In a papilionaceous flower, the 2 lowermost connate petals; resembles the keel of a boat; in grasses, the sharp crease or ridge of the leaf blades, the lemma or the glume.

Lacerate — With an irregular or jagged margin, as if torn.

Laciniate — Cut into narrow, often pointed, lobes.

Lamina — The flattened portion (i.e., the blade) of a leaf or petal.

Lanate — Woolly, with long intertwined, curly hairs.

Lanceolate — Longer than broad, widening above the base and tapering to the tips.

Leaflet — One of the segments or divisions of a compound leaf.

Lemma — The outermost of the 2 bracts that subtend the grass floret (see palea).

Lenticular — Biconvex in shape, "lens-shaped".

Ligulate — With a ligule.

Ligule — Flattened part of the ray corolla in the Asteraceae; in many grasses and some sedges and rushes, a membranous (or hairlike) appendage on the inner side of the leaf at the junction of the leaf blade and the sheath.

Linear — Long and narrow, with parallel margins.

Locule — A compartment in the ovule or anther.

Lodicule — One of 2 or 3 scales appressed to the base of the ovary (Poaceae)

Lunate — Crescent-shaped.

Lustrous — Shiny.

Lyrate — Pinnatifid with the end lobe enlarged and rounded.

Maculate — "Spotted".

Malpighiaceous — Hairs attached to a surface by their centers.

Maritime — Near to, or influenced by, the sea.

Megasporangia — The sporangia of a heterosporous plant that produces megaspores.

Megaspore — On a heterosporous plant, the larger of 2 spore sizes produced; a spore involved in development of female reproductive organs.

Membranous — Of parchmentlike texture.

Mericarp — One portion of the fruit (e.g., a schizocarp) that splits into 2 halves at maturity, found in members of the Apiaceae and the Haloragaceae.

Merous — A suffix referring to the division of floral parts, e.g., a 3-merous flower would have 3 petals, 3 sepals, 3 stamens, and a pistil with 3 carpels.

Mesic — Relating to habitats with a moderate or average amount of moisture.

Microsporangia — The sporangia of a heterosporous plant that produces microspores.

Microspores — On a heterosporous plant, the smaller of 2 spore sizes produced; a spore involved in the development of male reproductive organs.

Monoecious — Male and female reproductive structures borne on the same plant.

Mottled — Marked with spots or blotches.

Mucro — A small, short and abrupt point.

Mucronate — Having a mucro or abrupt, short projection on the midrib at the leaf tip, "abruptly slender-tipped".

Muricate — Roughened with short, firm and sharp projections.

Naked — Lacking various organs, hairs or appendages.

Naturalized — A well established plant originating from another area.

Neutral — In reference to a flower lacking functional stamens and pistils.

Nodding — Curving to 1 side; minutely pendulous.

Node — The location on a stem where stems or leaves usually originate, generally a swollen area, other structures like tendrils and flowers may also originate here.

Nodulose — More or less knobby, diminutive of nodose, especially for describing roots.

Nom. superfl. — A plant name that has been superseded by a valid name; a superfluous name.

Nut — A hard, indehiscent fruit, with 1 seed.

Nutlet — A small nut; also used when referring to each lobe of the 4-lobed nuts found in Boraginaceae.

Ob — A prefix meaning in the reverse of the typical direction.

Obconical — Conical in shape with attachment point at the narrow end of the cone.

Obcordate — Having an inverted heart shape, "heart-shaped".

Oblanceolate — Reverse of lanceolate, widest above the middle and tapering to the base.

Oblong — Much longer than wide with parallel or nearly parallel sides.

Obovate — The reverse of ovate; attached at the narrow end, "egg-shaped".

Obpyramidal — Having the shape of an inverted pyramid.

Obsolete — Reduced to the point of being entirely, or almost, undetectable.

Obtuse — Blunt, rounded.

Ochroleucous — Yellowish-white to buff or cream-coloured.

Oligotrophic — A water body low in nutrients.

Olivaceous — Olive-like in colour.

Operculate — Provided with an operculum; a little lid, the deciduous cap of a circumscissile fruit, or a fruit that dehisces along the circumference near the tips.

Orbicular — Having a circular outline.

Ovary — The enlarged base of the pistil that encloses the ovules of angiosperms.

Ovate — Shaped like a hen's egg, attached at the broader end, "egg-shaped". Term applied to plane surfaces.

Ovoid — Shaped like a hen's egg, "egg-shaped". Term applied to solid objects.

Ovule — A young or undeveloped seed.

Palea — The innermost of the 2 bracts that subtend the floret in grasses (see lemma).

Palmate — Lobed or divided in a palm- or hand-like fashion, digitate.

Panicle — A branching inflorescence on which younger flowers are borne at the tips.

Paniculate — Resembling a panicle.

Papilionaceous flower — A strongly irregular flower with five petals, the lowermost 2 petals are connate (fused) and form the keel, as in Fabaceae.

Papillate — Covered with small minute rounded protuberances (papillae) "pimpled".

Pappus — The modified outer perianth series crowning the ovary and achene in the Asteraceae; usually plumose, bristle-like, or of scales.

Parietal placentation — A pattern of placentation, in compound pistils only, where ovules are attached to the outer wall of the carpel.

Patent — Spreading or opening widely.

Pectinate — "Comb-like", pinnately lobed with narrow segments arranged like the teeth of a comb.

Pedicel — The "stalk" of a single flower in an inflorescence, or of a spikelet in grasses.

Pedicellate — Having a pedicel, "stalked".

Peduncle — The single supporting stalk of a flower or inflorescence.

Peltate — An umbrella-shaped leaf whose attachment point is on the underside of the leaf rather than at the base or margin, "umbrella-like".

Pendulous — Hanging or drooping.

Perennial — Growing for more than 2 seasons.

Perfect — A flower that has functional stamens and pistils.

Perfoliate — Bearing leaves whose bases are wrapped around the stem and connate, giving the appearance that the stem passes through the leaf.

Perianth — A collective term for the calyx and corolla.

Perigynium — A "pouched" bract surrounding the pistil or achene in *Carex* spp.

Persistent — Remaining attached.

Petiole — Leaf stalk.

Phenotypic plasticity — Ability to adapt, morphologically, to changing environmental conditions.

Phyllode — A somewhat expanded but bladeless petiole taking on the function of a leaf.

Phyllopodic — Having well-developed lower leaves instead of scales.

Piliform — Having the shape of a long, sometimes wavy, hair.

Pilose — Shaggy with soft hairs, "soft-hairy".

Pinna (*pl.* pinnae) — One of the primary divisions of a pinnately compound leaf or frond.

Pinnate — Compound leaf with the leaflets on both sides of an elongated axis.

Pinnatifid — Pinnately lobed.

Pinnule — A secondary leaflet in a bipinnately compound leaf.

Pistillate — Flowers possessing pistils, but no functional stamens (i.e., a female flower).

Pith — The spongy tissue in the center of a root or stem that surrounds vascular bundles.

Placentation — The pattern of attachment of ovules in the ovary. *See* axile, parietal or free central placentation.

Plumose — "Feather-like".

Pod — Any type of dry, dehiscent fruit.

Pollen — A general term pertaining to the haploid *(n)* microspores produced in the anther.

Polypetalous — Flowers with all petals distinct, not united.

Polyploidy — Two or more sets of chromosomes (e.g., 3n, 4n, 8n).

Prehensile — Grasping.

Prickle — Small, sharp outgrowth from epidermis, contains no vascular tissue.

Prismatic — Prism-shaped.

Procumbent — Prostrate or trailing stem, does not usually root at nodes.

Proliferous — Rooting from apical bulbil (a small bulb produced above the ground, often on the flowering stem).

Propagule — Any part of a plant capable of growing into a new organism; e.g., seed, spore, gemma, cutting.

Pro parte — In part.

Pro parte sed non typus — Resembles, in part, but not completely the type specimen; possessing some but not all characteristics of the type specimen.

Prostrate — Lying flat on the ground, may root at the nodes.

Proximal — Denoting the region nearest to the organ's point of attachment.

Pruinose — *See* glaucous.

Puberulent — Bearing very short, loose or erect hairs, scarcely visible to the unaided eye, minutely pubescent, "short-hairy".

Pubescent — "Hairy".

Pustulose — More or less with little blisters or pustules, "minutely blistery".

Pulverulent — Dusty, powdery.

Pulvinus — Swollen tissue at the insertion point of the leaf petiole, or sometimes at a joint or a minute gland.

Punctate — Marked with pits or dots formed by glands or waxy spots, "pitted".

Puncticulate — Minutely punctate.

Pyriform — Pear-shaped.

Raceme — An indeterminate, elongated inflorescence where single flowers are borne on pedicels arranged on a single axis; the youngest flowers are at the tips.

Racemiform — Possessing the form of a raceme.

Rachilla — The axis of a spikelet in grasses, refers to a secondary axis in sedges.

Rachis — The main stalk of an inflorescence or compound leaf, the "axis of inflorescence".

Radiate — In the Asteraceae, "heads with ray and disk flowers".

Ray (flower) — Strap-shaped corolla (ligule), as in the Asteraceae.

Receptacle — The expanded end of the stem on which floral parts are borne.

Reclining — Lying on the ground or 1 plant pressed on another.

Reflexed — Bent sharply downward or backward.

Regular (flowers) — A flower with radial symmetry; petals and sepals that are similar in shape, size, colour and orientation.

Reniform — "Kidney-shaped".

Resinous — Covered with a resin.

Reticulate — Forming a network, netted like the veins of a leaf, "net-veined".

Retrorse — Directed backward or downward.

Retuse — *See* emarginate.

Revolute — Leaf margins rolled toward the underside of the leaf.

Rhizome — A creeping, underground stem or rootstalk that roots at the nodes.

Rhombic — "Diamond-shaped".

Rib — A prominent vein, usually on a leaf.

Root — The descending axis of a plant that anchors and absorbs moisture from the ground, lacks nodes and internodes.

Rootstock — Used loosely to mean a main root or an underground root-like stem or branch.

Rosette — A dense cluster of flowers or leaves radiating around a central axis, usually basal in the case of leaves.

Rosulate — In the form of a rosette.

Rotate — Flat and circular in outline; "saucer-shaped" or "wheel-shaped".

Rotund — Rounded.

Rudimentary — Usually a small, imperfectly developed structure, generally reminiscent of an earlier evolutionary stage.

Rufous — "Reddish-brown".

Rugose — Possessing a "wrinkled" surface.

Rugulose — Slightly rugose.

Saccate — Shaped like a sac or pouch.

Sagittate — Shaped like the head of an arrow, triangular with the basal lobes pointing backward, "arrowhead-shaped".

Salverform — A corolla having a long slender tube that flares abruptly at the end.

Samara — A winged, indehiscent fruit.

Samaroid — Resembling a samara.

Saprophytic — A plant that derives its nutrients from dead organic matter and lacks the chlorophyll that gives most plants their green colour.

Scaberulous — "More or less rough".

Scabrid — *See* scabrous.

Scabridulous — "Minutely rough".

Scabrous — Having a roughened surface caused by very short stiff hairs or short sharp projections, "rough".

Scabrule — A stiff pointed projection or a short stiff hair.

Scale — A small, flat structure resembling the scale of a fish.

Scape — A flowering stem without leaves.

Scapose — Bearing a scape.

Scarious — Having chaffy, membranous, brown or "wax-papery" edges.

Scrambling — Slightly reclining.

Scree — Relatively small broken rock material characteristic of alpine areas, usually a result of freeze-thaw cycles.

Secund — Having all flowers or branches borne on 1 side of the axis.

Semi-aquatic — A plant that may tolerate partial submersion in water or a plant that roots in the soil but produces aquatic leaves.

Senescent — The process of becoming old.

Sensu lato — In the broad sense.

Sepals — The outermost whorl of floral leaves, also called the calyx and is usually green in colour.

Septate — Divided by cross-walls into separate compartments.

Septum — A partition; in an ovary, a partition formed of the fused walls of adjacent carpels.

Seriate — In rows.

Sericeous — A surface with long, soft, appressed hairs, giving a silky appearance and texture, "silky-hairy".

Serrate — "Sharp-toothed"; like a saw edge.

Serrulate — A margin with small serrated teeth, "with small-bristled teeth".

Sessile — Without a stalk, "unstalked".

Seta (*pl.* setae) — A bristle.

Setaceous — Bristlelike.

Setose — Bearing setae or bristles.

Sheath — An thin tubular organ that partially or wholly surrounds another organ; in grasses, the basal portion of the leaf blade that wraps around the stem.

Shrub — A woody perennial plant, less than 10 m tall, with several basal stems.

Silicle — A dry fruit of plants in the Brassicaceae generally not more than 2 times longer than wide which opens along the edges leaving the seeds attached to a central partition.

Silique — A long slender fruit (such as that of the Brassicaceae family) which splits open along the edges leaving seed attached to a central partition.

Simple — A leaf not compounded into leaflets, or an unbranched inflorescence.

Sinuate — A pronouncedly waved leaf margin, "wavy".

Sinus — "Notch", a cavity or a depression between 2 adjacent structures (e.g., the space between 2 lobes of a leaf).

Smooth — Without hairs of any type.

Sordid — "Dirty tinged".

Sorus (*pl.* sori) — A cluster of spore producing structures (sporangia) on the underside of a fern frond.

Spadix — A spike with small, densely crowded, unisexual flowers on a thick and fleshy axis, the inflorescence is subtended by a spathe.

Spathe — A large bract surrounding a spadix.

Spatulate — Broad and rounded at the tips; narrowing to the base, "spoon-shaped".

Spiciform — An inflorescence resembling a spike, "spike-like".

Spike — An unbranched inflorescence; flowers are sessile.

Spikelet — A small spike; in grasses, the primary inflorescence usually composed of 2 glumes (sometimes 1) and 1 or more florets.

Sporangia — Spore-producing structures.

Sporangium — Reproductive structure of ferns that produces spores.

Spore — A haploid *(n)* reproductive cell.

Sporocarp — The structure that contains the sporangia in ferns.

Sporophore — A leaf bearing reproductive structures; generally used in reference to the spore bearing leaves of ferns.

Sporophyll — A modified leaf bearing sporangia.

Sporophyte — The generation in the reproductive cycle of plants that produces spores; in ferns generally refers to the conspicuous form of the plant (see gametophyte).

Spur — A slender and hollow floral appendage, generally nectariferous.

Squamiform — "Scalelike".

Squarrose — Having parts, generally at the tip of a structure, that are abruptly curving and spreading.

Stamen — The male sex organ of a plant constructed of an anther and a filament, the anther produces pollen.

Staminate — Flowers bearing stamens but no functional pistils; a male flower.

Staminode (*pl.* staminodia) — A sterile, sometimes modified stamen (*syn.* staminodium).

Stellae — Star-shaped structures.

Stellate — "Star-shaped"; having many rays radiating out from a common center.

Steppe — An extensive area of dry, semi-arid grassland.

Sterile — Infertile flowers.

Stigma — The generally expanded, apical portion of the pistil which is receptive to pollen.

Stipe — A stalk supporting the pistil; also the petiole of the frond of a fern.

Stipitate — Borne on a stipe or short stalk, "short-stalked".

Stipule — An appendage that maybe present on each side of the base of a leaf or petiole at its insertion point on the stem.

Stolon — An elongate, creeping, above-ground horizontal stem that roots at the nodes or at the tips.

Stramineous — Having the colour of straw, "straw-coloured".

Striate — With fine longitudinal lines, channels or ridges.

Strigillose — Like strigose but with shorter hairs, "short appressed-hairy".

Strigose — A surface having sharp, straight appressed hairs pointing more or less in the same direction that are stiff and often basally swollen, "appressed-hairy".

Style — A generally elongated stalk connecting the ovary and the stigma through which the pollen tube grows.

Styliform — Resembling a long slender stalk, like a style.

Stylopodium — A disk-like enlargement at the base of the style.

Sub — A prefix signifying below, somewhat, slightly or rather.

Subspecies (ssp.) — A category of biological classification ranking immediately below the species level.

Subtend — To be positioned directly or closely beneath something.

Subulate — Narrowly triangular and tapering to a small point like an awl, "awl-like".

Succulent — Fleshy, having a soft and thickened texture.

Sulcate — Longitudinally grooved or furrowed.

Superior ovary — An ovary which is attached to the summit or center of the receptacle and is free from all other flower parts.

Sympatric — Occurring in the same geographic area.

Sympodial — Having an apparent main or central axis that is actually comprised of several short overlapping branches.

Synonym — An equivalent superseded name, a second name to a given taxon.

Talus — An accumulation of rock material on or at the base of a slope, larger material than scree.

Taproot — An underground tapering, main root from which smaller lateral roots may form (may be thick or thin).

Tendril — A long, slender, generally twisting structure from which a climbing plant acquires its support.

Tepals — A collective term applied to petals and sepals when they are morphologically identical.

Terete — A structure that is circular in cross-section but imperfectly cylindrical since the object may taper 1 or both ways.

Ternate — Arranged in groups of three.

Tetrad — In groups of four.

Thyrse — An elongated and densely flowered panicle, often contracted and pyramidal in shape.

Thyrsoid — Resembling a thyrse.

Tomentose — Densely pubescent with soft, matted wool-like hairs, "woolly-hairy", "woolly".

Tomentulose — Slightly or finely tomentose or "slightly woolly".

Toothed — Bearing teeth-like protrusions.

Torose — Having successive swellings and contractions, "constricted between the seeds".

Torulose — Slightly torose.

Tri — A prefix meaning three or three times.

Tricuspidate — *See* cuspidate.

Trifid — Separation into three parts.

Trifoliate — A compound leaf with three leaflets.

Trigonous — Having three angles.

Tripinnate — Branched three times.

Triquetrous — With three sharp angles, like a triangle with concave sides.

Trophophore — A vegetative leaf or frond, one that does not have reproductive structures attached.

Truncate — Cut-off at the end; having a squared shape at the tips or base.

Tuber — A thickened, modified underground stem having many buds (e.g., a potato).

Tubercle — A small, rounded swelling.

Tuberculate — Bearing tubercles.

Tuberous — Thickened; producing tubers.

Turbinate — Inversely conical, "top-shaped".

Turgid — "Swollen".

Turion — A small, scaly bud-like offset on an underground stem.

Type specimen — A specimen identified by the author of a species that, morphologically, represents the best example of this species (*syn.* holotype).

Umbel — An inflorescence in which all flowers arise from a common point, younger flowers are in the center, may be simple or compound.

Umbellate — Arranged in umbels, umbel-like, "umbrella-like".

Umbellet — A secondary umbel in a compound umbel.

Undulate — Slightly wavy, as some margins.

Uniseriate — Arranged in a row or series.

Urceolate — "Urn-shaped".

Valve — One of the segments into which a dehiscent fruit splits at maturity.

Variety *(var.)* — A category of biological classification ranking immediately below the species or subspecies level.

Veins — Thin threads of vascular tissue, as in a leaf.

Velutinous — Having a velvety texture.

Vernal — Pertaining to, or appearing in, spring.

Verrucose — Covered with wart-like protrusions, "wartlike".

Verticillate — *See* whorled.

Verticils — *See* whorl.

Vestige — The reduction of a structure whose functional importance has decreased with evolutionary time.

Villous — With long and soft, unmatted hairs, "long-hairy".

Viscid — Glutinous, greasy, or sticky.

Wanting — Lacking.

Whorl — Three or more structures arranged in a circular manner around a common insertion point.

Whorled — Having whorls.

Wing — A thin membranous outgrowth.

Winged — Bearing wings.

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